

JAN 9 1922

CALIFORNIA STATE JOURNAL OF MEDICINE



YOSEMITE FALLS—HIGHEST IN THE WORLD—(YOSEMITE
LODGE IS AT FOOT OF FALL)

JANUARY · 1922

Vol. XX. No. 1

\$4.00 a Year

Publisher
Jt.
4-24-1923

California State Journal of Medicine

OWNED AND PUBLISHED MONTHLY BY THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

Entered at San Francisco, California, as Second-Class Matter

BUTLER BUILDING, 135 STOCKTON STREET, SAN FRANCISCO

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CELESTINE J. SULLIVAN

VOL. XX

JANUARY, 1922

NO. 1

EDITORIALS

THE NEW YEAR

Our successes and failures of 1921 as individuals and as organizations, whatever they may be, are history, and we stand upon the threshold of a New Year. During the coming year, the State Medical Society ought to make a great deal of progress in the advancement of the cause of better medicine. As an organization we will be successful exactly in proportion as we are able to secure the co-operation and support of individual members. We ask and urge that every member of the State Society give something of his time and of his means toward the betterment of his own organization.

Members are asked to bear in mind particularly that continuity of medical and indemnity defense protection and continuity of membership requires that the 1922 dues be paid on or before March 1, 1922.

County secretaries are urged to mail promptly before the 10th of each month their monthly reports to the State Society. The splendid co-operation of many secretaries in this respect is reflected in the county news columns of the JOURNAL. Some secretaries have not yet established the habit of completing and forwarding these reports and in consequence their societies and their members do not receive published credit the JOURNAL is willing and anxious to give them.

County secretaries are also requested and urged to familiarize themselves with the proceedings of the semi-annual conference of state and county officers held in San Francisco September 24, 1921, and published in the November number of the JOURNAL.

County secretaries are also requested, at the earliest possible moment, to furnish names of the officers of their societies for 1922, including the council and including particularly and specifically the names and addresses of delegates and alternates to the State meeting.

Officers in particular and members in general of local societies could render material assistance to their own organizations and the state organization by accepting suggestions contained in the

JOURNAL and obviating the necessity of time and expense in more direct and more personal communications. Co-operation in this feature of our work is urgently requested of all and particularly of all secretaries.

The secretary of the State Society wishes every member of the organization a Happy New Year, and asks as one of our New Year resolutions that we all make a special effort to do everything in our power to advance the cause of better medicine during the coming year.

THE PHYSICIAN'S FAMILY

The conscientious physician devotes his time and thought to one thing—his profession. He has little time to study investments and the accumulation of wealth, and too often pays, and pays heavily, for his enforced lack of business training.

But more than that—his family pays. Accustomed to that standard of living demanded by his profession, they are poorly fitted to carry on in the event of his untimely death.

When a merchant, manufacturer, farmer or other person whose life has been devoted to personal interests dies he usually leaves that which has a realizable cash value—either ownership of a business or an interest in it. In either case an income is available for his family.

But when the physician passes away, usually he leaves a few books and instruments, with perhaps some bills receivable and possibly a good-will that has little money value.

Death ends all, so far as the family's income from his profession is concerned; and frequently old age or earlier physical impairment, or mental exhaustion, ends his earning power and puts him and his family into a hard predicament.

There is no class by whom the help of life insurance is more urgently needed than by men of the medical profession. No other thing can take its place—no other investment can be made that will, even in a small measure, operate as a substitute for the earning capacity of the medical man after his passing.

Is your family amply protected? Or have you been lulled to a false sense of security?

Arrange your family's welfare *while you can*. Any substantial life insurance company will advise you wisely.

ORIGINAL ARTICLES**PROLAPSE OF THE UTERUS WITH RECTOCELE AND CYSTOCELE; AND END RESULTS OF VARIOUS OPERATIONS.***

By ALFRED BAKER SPALDING, M. D.,
San Francisco.

From the Women's Clinic of the Stanford University School of Medicine.

Although many of the best operative procedures for uterine prolapse have been devised by American gynecologists, very few satisfactory reports of the late results following these operations can be found in the American literature. Goffe,¹ in 1912, reported the conditions found in twenty-four patients that he examined personally from two to seven years after his operation. Watkins² reported the results obtained in sixty-eight cases operated upon by the interposition method since 1905; and recently Clark³ has summarized a questionnaire sent to eighty-four patients on whom he had operated for prolapse at least one year previously. To me these reports are disappointing, because I believe such reports should include a statement of symptoms and conditions present before operation, the type of operation done for cure of the conditions, and a full report of complications encountered at the time of operation, or during convalescence. Ultimately, these patients should be questioned and examined in the clinic at periods some months or years after operation and a clear statement of symptoms and the condition of rectocele, cystocele, and prolapse noted.

For many years the Women's Clinic at Stanford University School of Medicine has been interested in comparing the curative value of various operations proposed for the relief of marked conditions of prolapse of the uterus associated with cystocele and rectocele. Fairly complete histories have been taken in most cases and very extensive descriptions have been written of the operations performed. The post-operative conditions during the convalescent stay in the hospital have also been noted in the histories.

After leaving the hospital, this group of patients has been followed by the Social Service Department and re-examined by the clinical staff for periods varying from three months to eight and one-half years after operation; and, although from a statistical point of view the number may seem small, the facts obtained by this follow-up method are most instructive. It is by studying critically such a series as this that better technic has been developed in the clinic, and it is hoped that a full presentation of the difficulties encountered in this special branch of pelvic plastic surgery will be of interest to others treating women suffering from this most distressing obstetrical ailment.

From July 1, 1912, to January 14, 1921, sev-

enty-six patients with uterine prolapse have been operated upon in the Women's Clinic of the Stanford University School of Medicine. Seventeen patients were treated by interposing the uterus under the bladder according to the technic described by Watkins² and others⁴; seventeen by transplantation of the sacro uterine ligaments from the posterior to the anterior surface of the cervix, as described by Jellett⁵; twenty-four by vaginal panhysterectomy, with fixation of the bladder to the broad and round ligaments, as described by Goffe⁶; twelve by vaginal supravaginal hysterectomy, as described by Spalding⁷; one by vaginal supravaginal hysterectomy, as described by Vineberg⁸, and five by various methods of anterior colporrhaphy.

All the patients in this series had cystocele and sixty-eight had rectocele. The cervix was lacerated in fifty-two of the patients, was eroded in thirty-eight, and hypertrophied in fifty-one. The uterus was retroverted in fifty-one patients, was prolapsed to the vulva in twenty-six, through the vulva in sixteen, and presented outside the vulva with cystocele and rectocele in thirty-four patients.

The average age of the patients was forty-three years, the youngest being twenty-five and the oldest sixty-nine. There was an average of slightly over five pregnancies to each patient, with an average of four para. Prolapse followed with some patients after a single confinement, the largest number of children being twelve. Of the seventy-six patients, sixty-four had had spontaneous confinements and thirty-eight had had spontaneous abortions. Only twelve gave a history of operative deliveries and ten of induced abortions.

The chief complaint with fifty-nine patients was "falling of the womb," although thirty-two mentioned backache; twenty-eight, constipation; twenty, headache; fifteen, menstrual disturbances; fourteen, cystitis; thirteen, incontinence of urine, and ten, pain in the lower abdomen, as associated disturbances.

In all but one case, some type of perineorrhaphy was done, and in six of the more recent cases the rectum was supported by a more extensive procopexy. In somewhat less than half the cervix was repaired either by amputation or trachelorrhaphy. With a few patients also such operations as hemorrhoidectomy, herniotomy, tightening the bladder sphincter, salpingectomy, oophorectomy, appendectomy, myomectomy and abdominal uterine suspension were done.

Pathological examinations were made in each case, with the result that thirty-two showed chronic cervicitis; twenty-one, endometritis; fourteen, myoma or adenomyoma of the uterus; twelve, metritis; six, salpingitis; three, cyst of the ovary; two, oophoritis, and one, a pre-cancerous condition of the cervix. This last patient showed very marked epithelial proliferation in an ulcerated cervix, but no actual invasion of the tissues could be demonstrated.

Forty-five patients developed a fever of 101° at some time during their convalescence and forty-two had a rise in pulse rate of over 100 during

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

the first twenty-four hours following operation. Of the post-operative complications met with, one of the early vaginal hysterectomies had a severe post-operative hemorrhage; two developed a pelvic hematoma; one, pneumonia; two, vesico-vaginal fistulae; one, pelvic abscess, and six, local perineal infections. The two patients with fistula were apparently cured by a second operation, although one of the patients returned a year later with stone in the bladder. One patient died of peritonitis after a vaginal hysterectomy, due to an overlooked streptococcus cystitis which had followed an attack of acute streptococcus angina shortly before coming to the clinic for operation, and one patient died of shock following an apparently simple vaginal supravaginal hysterectomy. The remaining seventy-four patients left the hospital after an average convalescence of twenty days.

Thirteen, discharged in good condition, failed to return later to the clinic, and because of false addresses and often false names, it has been impossible for the Social Service Department to locate them. Thirty-one of the remaining sixty-one have been followed for periods varying from one to eight and a half years. Of the sixty-one patients in this group, all but eight, or 87 per cent, were entirely cured of their original complaints. One patient, whose chief complaint was backache, died some four years later of *tuberculosis dorsalis*, and a second patient, with backache, was later demonstrated by the X-ray to be suffering with a chronic arthritis of the dorso-lumbar spine. A third patient, with perfect pelvic restoration, but unrelieved of her chief complaint of bladder frequency, proved later to be suffering with renal tuberculosis.

These experiences illustrate the fact that patients with pelvic prolapse need particular study, for the reason that the very evident mechanical displacement may distract attention from other serious disturbances. On nineteen patients, at some subsequent examination, it was possible to demonstrate some degree of recurrence, although many of these patients were relieved of their original complaints. Three patients had decided prolapse of the uterus. The operation for these patients had not been well planned, inasmuch as the uterus, which re-prolapsed after an interposition operation, was pathological and should have been removed. The patient was cured by a subsequent vaginal hysterectomy. The interposing of the cervix under the bladder, following subtotal vaginal hysterectomy, was not successful in a second case, and this technic has been given up in the clinic. This patient was cured by suspending the prolapsed cervix by laparotomy.

The third patient was complicated with salpingitis and cystic ovary. An attempt was made to cure her by anterior colporrhaphy and proctopexy with a Gilliam suspension and removal of one ovary and tube. A better plan would have been to have done a panhysterectomy with suspension of the vagina on the round ligaments, together with an overlapping of the fascia under the bladder and proctopexy.

Cystocele recurred with nine patients. This is an entirely preventable occurrence if the pelvic fascia is overlapped under the bladder. We have had no cystocele recurrences since doing this operation the past four years, although in the interposition operation this technic has not been considered necessary.

Rectocele gives the greatest amount of concern in all types of operations for prolapse and is the most frequent type of recurrence. In our series, seventeen, or over 22 per cent, had return of rectocele. The rectoceles recurred following the usual procedure of perineorrhaphy, no matter what particular type of operation was done, but no rectocele has recurred following the more extensive proctopexies. The usual experience is that so much time is consumed in operating on the bladder and uterus that time is not given for a proper and complete operation on the rectum.

CONCLUSIONS.

Prolapse of the uterus can be cured with a very small degree of operative risk if the patients are carefully observed before operation to exclude other causes for cystitis and backache. Prolapse should recur only rarely after operation and cystocele never, provided infection can be avoided. Rectocele is more difficult to cure unless a high dissection of the posterior plane of the pelvic fascia is made and the rectum fixed to a point behind the cervix.

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THE 1922 MEETING

All members and guests, who are planning to attend the State meeting in Yosemite, Monday to Thursday, May 15 to 18, 1922, are urged to promptly communicate with Mr. H. H. Hunkins, 637 Pacific Building, San Francisco, regarding transportation and hotel reservations. Mr. Hunkins is chairman of the committee who has this matter in charge, and will give prompt attention and courteous reply to any communications.

Members interested in the program should communicate promptly with the chairman or secretary of the section they are interested in, because the program will be closed during this month. A list of the officers of sections is to be found on page 31 of this number of the *JOURNAL*.

EXTRAPLEURAL THORACOPLASTY *

By HERBERT A. JOHNSTON, M.D., Anaheim, Cal.
(Johnston-Wickett Clinic, Anaheim, California.)

While the treatment of tuberculosis of the lung will always be the work of the internist, there are certain cases where surgery should be the treatment of choice and from recent developments it appears that this number will be greatly increased in the near future.

Artificial pneumothorax (Forlanini-Murphy) is of great assistance in the treatment of selected types of pulmonary tuberculosis, particularly when the pulmonary and costal pleurae have not become too adherent. Where the adhesions are dense, the pleurae thickened, attempts at inflation usually fail. In a certain number of such cases surgery of the bony framework of the chest offers definite collapse and immobilization, with a chance of relief or even a cure.

It is well known that absolute rest of a tuberculous focus tends towards its resolution. To prevent mobilization of the diseased lung whose adherent pleurae preclude successful pneumothorax, different methods have been tried. As early as 1908 Friedrich of Munich devised a modification of the Schede operation which he termed "Extrapleural Thoracoplasty." This was done by means of the Schede incision and while successful as to detail, produced considerable shock and was none too well suited to the weakened individuals upon whom it was usually necessary to operate. Sauerbrück, Friedrich's assistant, modified the operation by doing it in two or more stages and under local anaesthesia. The results were better. Wilms of Heidelberg modified the operation still more by using his "columnar resection" anterior and posterior, leaving a central section of each rib to act as more effective compression and better protection to the thoracic viscera. The operation is comparatively simple and in the hands of experienced surgeons consumes but little time and is seldom followed by shock. The immediate risk to the patient is small. The fact that the attachment of the ribs and sternum is cartilaginous provides at once a readily movable and flexible articulation, so that by confining the surgery to the vertebral ends of the ribs, removing large sections which include the angle of each rib, a satisfactory collapse and immobilization of the lung may be procured. It was A. Boiffin, who first clearly demonstrated through J. Gourdet, a pupil, precisely why it is the posterior portion of the rib that must be removed. Gourdet's argument, quoted by Bull, is as follows:

"On account of the yielding rib cartilage the anterior part of a rib can be pressed inwards, while the posterior portion is stiff and, practically speaking, immovably connected with the vertebral column, and in any case can only be moved up and down a little. Further, the posterior part of a rib exhibits a marked concavity forwards, or, in other words, forms an arc the radius of which is much less than that of the arc of the rib other-

wise; the angle of the rib forms the most prominent point in this arc behind. Any resection of the ribs which is situated in front of the angle of the scapula leaves behind a stiff unyielding piece of rib, which in accordance with its length will prevent the soft parts from falling in and diminish the costo-vertebral angle. If, on the other hand, we remove the posterior stiff part of the ribs, the anterior part can very easily be turned about the costal cartilage and pressed in towards the thoracic cavity and backwards towards the posterior fragment of rib, so that the entire arc of the rib decreases considerably in its curve and thereby also decreases the volume of the thorax. By this method the anterior part of the ribs is not hindered in its movements by the soft parts, which in other methods stretch over the projecting posterior end of the rib. This principle, as set forth by Boiffin-Gourdet, runs through both Sauerbrück's and Wilms' 'Columnar Resection.'"

The selection of patients upon whom it is best to perform collapse by means of extrapleural thoracoplasty requires particular skill. While in the main one might say that any patient requiring collapse therapy, upon whom the attempt to produce pneumothorax was unsuccessful, would be eligible to chest wall surgery, there are certain limitations. A great deal depends upon the condition of the opposite lung. While it would seem that a slight infection would not materially interfere with the outcome of the operation, the writer is of the opinion that the surgeon should be very cautious in attacking any thorax where the "better" lung shows very evident infection. Roentgenographic studies of all cases should be made. These will reveal the presence of cavitation and give a better idea of the condition of the pleurae, especially its thickness and adhesions.

Case Report

Case No. 7907, referred by Drs. Kalb and Kirschner, Monrovia. Miss A. K., age 31, teacher and native of Nebraska, came to California eight years ago. One sister died at 24 years, of phthisis, otherwise family history is negative. Had usual childhood exanthemata, whooping cough at 15, and bronchitis at 29 with recovery.

Has always enjoyed good health except as above. Very fond of outdoor life and indulged in athletics. Began coughing in February, 1918. Temperature range from 99° to 103°. Became suddenly worse in January, 1919. Change in posture was followed by profuse expectoration and rapid rise in temperature to 105°, with chills. Incomplete pneumothorax by Dr. Kalb repeatedly until December, 1919, resulted in general improvement and reduction of highest temperature from 104° to 102°. Patient kept continuously in bed in a sunny, well ventilated room, near the foothills.

Physical examination revealed a very thin, poorly nourished patient weighing about ninety pounds, having lost twenty-seven pounds in one and one-half years. The heart was regular, rapid (104), no murmurs. The arterial blood pressure was 110/75. The respiratory movements were decreased on right side with increased dullness, harsh bronchial breathing and evident cavitation. The blood contained Hemoglobin 60 per cent, Erythrocytes 3,160,000 and Leucocytes 17,350. Clotting time, 5 minutes. Urine contained a doubtful trace of albumen, occasional pus cells, many crystals calcium oxalate, some epithelial casts, otherwise negative. Roentgenogram of chest showed right lung cloudy

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, San Diego, May, 1921.

throughout with cavities and many pleural adhesions. Left lung clear except for a few calcified glands at hilus.

On June 8, 1920, operation under local anaesthesia, a parasternal incision was made on right side. Extrapleural resection of parts of first to fifth ribs inclusive, closure of muscles and skin. No drainage. Patient made an uneventful recovery, leaving hospital in two weeks. Her general health gradually improved. Sputum decreased and temperature curve improved. Pressure bandage applied.

On September 2, 1920, she was referred back again by Dr. Kalb for the second stage of operation. The roentgenogram showed considerable collapse of the lung but not sufficient to obliterate the cavities. She was not coughing as much and the temperature had been considerably lower since the first stage of the operation. There was practically no respiratory movement of the right chest and no bony union at points of resection. Being quite apprehensive about the operation, a combination of morphine, procain and gas oxygen anaesthesia was used. A paravertebral incision exposing angles of fifth to eleventh ribs being made, sections varying from two to four inches were removed in each instance, always including the angle, without opening the pleural cavity.

She left the hospital in a week and made a good recovery and, excepting a slight infection of lower end of incision and some neuralgia in shoulder, had no post-operative complications.

In a letter dated November 24, 1920, she says: "My temperature is seldom above 99° these days, sometimes normal all day."

Her recovery has progressed satisfactorily up to the present time and the outlook is good.

Summary

1. The extrapleural rib resection under local anaesthesia is a comparatively safe operation.
2. The patient with large cavities and toxic conditions from pus absorption, still has a chance even if artificial pneumothorax has failed.
3. The proper selection of cases for operation is of more importance than anything else and requires careful study.
4. In some instances it is better to divide the operation into more than one stage.
5. Extrapleural resection of the angles of the ribs offers the best means of collapsing the lung.

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URINARY PUS CELL COUNT*

By LEON J. ROTH, M. D., F. A. C. S., Los Angeles

Routine laboratory reports concerning pyuria are often fallacious and the interpretations of them frequently lead to wrong opinions, not only from a viewpoint of diagnosis or prognosis, but in segregating cases that either are or are not worthy of serious study.

In the urine the importance of a small amount of pus originating from the glands or mucus membranes of the lower urinary segment or from the genitalia may be nil, yet upon centrifuging such a specimen many corpuscles will be demonstrated that may wrongly stimulate the notion of severe infection. Such interpretations are further induced because the urine submitted for examination has not been properly collected and inspected.

Gross infections are quite apparent and usually the microscopic search for pus cells is negligible, but the finer infections, such as pyelitis, pyelonephritis, obscure prostatitis and vesiculitis, and the remote urinary infections of children and young adults, are problems the course of which becomes more complicated and result of treatment more uncertain without absolute microscopical control of the actual number of white corpuscles.

A characteristic of renal pyuria is that the exhibition of cells is consistent and constant. Urinary pus may be decreased somewhat by rest, and increased by exercise, cold, and alcohol, but with unusual exception, infection once chronically established is continuous and the variation in intensity of this is slight.

A drop of pus in a centrifuged specimen of 100 mls or ten drops in a like volume will, in a pipetted deposit on a slide, show the same number of cells. The microscopic examination of 1 mil or 10 mls of pus in concentration will furnish such crowded fields that they cannot be told apart. The amount of pus produced by a urethral shred collected by pipette from the bottom of a centrifuge tube will, by comparison, show as many cells under a cover glass as a like quantity of pure pus similarly obtained.

Because of the consistent quality of a given specimen of urine 1 c.mm. taken from 10 mls or 100 mls will give the same number of cells.

Until recently we have been counting a definite number of fields and making our estimate on the average number of cells per field in uncentrifuged specimen. This is not a precise method, as cover glass pressure and fluid dispersion cannot be controlled.

Therefore, as a means of more or less accurate diagnostic and prognostic aid, the following method has been adopted. The technique is both rapid and simple, and the count is made without centrifuging.

The fresh specimen of urine is thoroughly shaken and a portion drawn into a red blood cell pipette. This pipette is chosen because it facilitates a final agitation of the fluid. A Thoma Zeiss counting chamber is then filled with the fluid in the method used for counting blood cells. The eyepiece of

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

the microscope is adjusted so that the diameter of the field is eight small squares. One hundred fields are then counted, disregarding the ruling of the counting chamber. The resulting number multiplied by .7957728 will give the number of pus cells in 1 c.mm.

The factor .7957728 is found by the following means:

The field is eight squares in diameter. The radius expressed in mm. is .2 mm. The area of one field is πr^2 or $3.1416 \times .04$ equals .125664. The depth of the chamber is .1 mm.; therefore, the volume of one field counted is .125664 x .1 equals .0125664. If .0125664 equals the volume of 1 field, 100 fields equal $100 \times .0125664$ or 1.25664. 1.25664 is greater than 1 c.mm., 1 c.mm. divided by 1.25664 equals .7957728 or the factor with which to multiply to obtain the number of cells in 1 c.mm.

The following figures have been chosen, arbitrarily, to designate the degree of pyuria:

No pus cells.....	Per field	0.
Very few.....	1.	1.
Few.....	2.	2 to 3.
Moderate amount.....	3.	4 to 6.
Many.....	4.	6 to 8.
Loaded.....	5.	9 or more.

per c.mm.	0	100	300	500	700	plus
0	0	100	300	500	700	plus

The variation of specific gravity has no great influence upon computations, but we have adopted 1000 as a standard and the formula expressed as follows:

The known specific gravity is to 1000 as the number of pus cells in 1 c.mm. is to x.

e. g., 1020 : 1000 :: 102 : x.

As a control in the count following prostatic massage the bladder is thoroughly irrigated and finally filled with 100 cc. of mild antiseptic solution. This is voided after massage and the count made using this 100 cc. as a standard quantity. The estimate here, as elsewhere, is relative.

It is desired to convey the suggestion that in making plural counts the physical character and quantity of the urines should be closely similar.

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TREATMENT OF GOITRE

By C. L. HOAG, M. D., San Francisco.

When we review the history of goitre, we find that for many years it was regarded as a disease to be treated by medicine alone. It was largely the work of Kocher that made the surgical treatment so successful. Year by year, with increasing experience, and technical skill, surgeons have lowered the mortality rate and have taught the profession, as well as the laity, the need for early operation if irreparable damage is to be avoided. The development of X-ray and Radium therapy has opened up new fields in the treatment of many diseases, and it is not surprising that the goitre problem has received its share of attention. The pendulum has swung from medicine to surgery and now seems to be swinging towards radio-therapy. Much of the treatment is done, unfortunately, in a perfunctory manner, without sufficient thought and care, without proper choice of cases, and without a knowledge of those general principles which are so essential to the intelligent choice of therapeutic methods.

It would seem that a word of warning is particularly needed at this time when this form of treatment is so often carried on by physicians, or even technicians, who have had little or no experience in the treatment of goitre, or even with general radiotherapy.

Our whole system of modern medicine is based upon correct diagnosis. When a diagnosis of thyroid disease has been made only the first step has been taken towards establishing a rational basis for treatment. It is just as necessary to recognize clearly the various forms of thyroid enlargement as it is to distinguish one type of intestinal parasite from another, or to differentiate empyema from pneumonia.

The clinician and the pathologist do not entirely agree upon the classification of goitre, as the pathological picture is not always in accord with the clinical findings. However for practical purposes the following classification meets all requirements.

GOITRE

- | | |
|-----------|---|
| Atoxic | (1) Simple hypertrophy, adolescent goitre |
| | (2) Colloid, calcified or cystic |
| | (3) Simple adenoma |
| Toxic | (1) Toxic adenoma |
| | (2) Hyperplastic (exophthalmic) |
| Malignant | (1) Carcinoma. |
| | (2) Sarcoma, etc. |

In well developed cases it is usually easy to classify goitre into these groups, but there are many border-line cases giving rise to mild signs and symptoms in which an accurate estimate of the glandular function is essential. It is not only necessary to know that an increased or decreased function exists but also the degree of that changed function. This is often impossible clinically, for a large goitre may actually be deficient in thyroid secretion, while a barely noticeable gland will produce an extreme degree of hyperthyroidism. The thyroid secretion now appears to be the principal regulator governing metabolic processes in the body. By determining

the basal metabolism in goitre patients, an accurate estimate of thyroid activity is secured.

As far back as 1883, Lavoisier made studies in basal metabolism. Many other investigators have contributed to this subject since his time. Briefly, the output of CO_2 bears a direct ratio to the rate of tissue destruction. By measuring the O intake, or the CO_2 output from the lungs over a given time, the rate of tissue destruction is determined. This rate is a constant in all healthy individuals, when taken under standard conditions of food and rest, and corrected for the body weight. It is, therefore, the normal or basal metabolic rate of chemical change within the body cells. While this rate varies very little in health it may be either increased or decreased by disease. With the simplified apparatus now obtainable for this estimation, it is rapidly becoming a valuable adjunct to diagnosis.

A number of diseases influence the metabolic rate, but the changes found in goitre are the most striking of any. In exophthalmic goitre, the rate may actually be doubled—cases of +115 per cent increase having been reported—while in myxedema it may fall to 25-40 per cent below normal. Even allowing for a certain error in the determination, it is more accurate than any clinical estimate and gives a measure of the degree of changed function. It should be used to corroborate clinical findings, not only in toxic conditions but also in large non-toxic goitres where hypothyroidism may be an unlooked for and unrecognized condition. It is invaluable in determining the dose of thyroid extract or thyroxin to be given in myxedema, also in checking up toxic goitres relapsing after operation.

Again, it is valuable in determining the opportune time for operation, or that stage in which the experienced clinician has what Plummer calls a "hunch," that operation will be well borne. At the Crile and Mayo Clinics radical operation is not done in those toxic cases showing a basal metabolism over +50 per cent. Medical treatment, ligation of the superior thyroid arteries and X-ray are used until this point is reached, before removal of the gland is done. However, the time for operation must not be selected upon the basal metabolism alone, as the phase of the disease, from a clinical standpoint, is even more important. All toxic-goitre patients have alternating periods of exacerbation and recession. They do not stand operation well during those periods when the disease is on the increase, even though the metabolic rate is well below +50 per cent.

Simple and adolescent goitre: This form usually comes on in early life, during the period of adolescence. The thyroid is uniformly and moderately enlarged and there is a corresponding increase in all its histological parts. As a rule, it presents few or no symptoms and the metabolic rate is not increased. It is believed by Marine to be an expression of an effort on the part of the thyroid to compensate for a deficient iodine supply in food and water. This form of goitre usually responds to medical treatment with small doses of iodine. Various forms of iodine may be used.

One of the simplest and most pleasant is the Syrup of the Iodide of Iron in twenty-minim doses daily, every alternate month. If medical treatment is not successful, X-ray therapy may be tried in addition to the use of iodine, the lack of which is believed to be the cause of the hypertrophy.

Colloid, calcified and cystic goitre: This type of non-toxic goitre may appear at any age. It comes usually late in life, it grows slowly and is often confined to one lobe. When both lobes are involved they are usually unequal in size. Symptoms are from pressure only. The metabolic rate is usually not affected but may be below normal if the normal thyroid tissue is sufficiently destroyed or compressed. The treatment is purely surgical and is called for to relieve pressure and to improve the appearance of the patient. I can not too strongly emphasize that in these cases the X-ray is definitely contra-indicated and if used may destroy the remaining thyroid tissue and bring on hypothyroidism.

Simple and fetal adenomata: These forms are believed to arise from embryonic cell rests. They are usually bilateral, discrete, freely movable masses, multiple in number, varying from the size of a shot to that of a baby's head. They appear at any time in life and grow slowly. Many, later, show toxic signs, others either calcify or degenerate, and become cystic. All tend to compress and replace normal thyroid tissue. Many grow to such size that they produce pressure symptoms upon nerve trunks, the trachea or the oesophagus. The basal metabolism is not changed. The principles of treatment are the same as those for colloid goitre and X-ray is again strongly contra-indicated.

Toxic adenoma: A certain percentage of the simple adenomata become active and produce all the toxic signs and symptoms found in exophthalmic goitre *except the exophthalmos*. These adenomatous masses are usually multiple, circumscribed, vary in size and may affect both lobes. While heart changes, rapid pulse, loss of weight, weakness, diarrhoea and an increased basal metabolism are present, these signs are usually less marked than in hyperplastic goitre. The patient generally states that she has had a goitre for many years, but it occasioned her little trouble until she was about 35. *In contra-distinction to this type, a true hyperplastic goitre, as a rule, gives marked symptoms within one or two years after its appearance.* Any toxic adenoma with a basal metabolism above +10 per cent is producing heart changes and should be treated. Some exhibiting mild toxic symptoms may show an increased basal metabolism only during periods of exacerbation.

X-ray does not affect this type of goitre and is definitely contra-indicated as in simple adenomas. It not only does not alter the adenomas but it damages the remaining normal thyroid tissue which may be barely sufficient in amount to maintain health. It is this change in normal thyroid tissue which is responsible for the apparent though temporary benefit frequently seen after radiation. These masses should be removed surgically, while

taking great care to preserve the normal thyroid tissue surrounding them.

Hyperplastic or exophthalmic goitre: This is the type with which we are all reasonably familiar and more seriously concerned. Exophthalmos, either unilateral or bilateral, with positive von Graefe and Stellwag sign; pulsating goitre mass, either large or small; rapid, irregular heart, often showing signs of hypertrophy and myocarditis; tremor of the hands and tongue; diarrhoea; rapid loss of weight; marked nervousness and change in disposition and a greatly increased basal metabolism are all signs which make diagnosis easy. *In contra-indication to the toxic adenoma these goitres develop within one to two years and the signs and symptoms are often recognized before the thyroid enlargement is noticeable.*

Even when these classical signs are not sufficiently well developed to warrant a diagnosis of hyperthyroidism, the basal metabolism is already well above normal and furnishes the first reliable proof that the disease is present.

The pathological picture shows the acini, normally tubules, lined with a single layer of cells, now packed with newly formed epithelial elements, all active in secretion.

Fortunately, it is upon this type of growth that X-ray and Radium has its most effective action. As in Cancer, these newly formed cells, resembling the embryonic types, are most affected by radiation. Here, Roentgenotherapy may be of the greatest value, and if not curative, very helpful in decreasing the amount of thyroid secretions and the signs and symptoms of toxicity. In some cases, radiation is apparently curative, in others the effect is temporary and this treatment must be followed by a bilateral resection of the gland, with or without previous ligation of the superior thyroid arteries.

The milder forms of treatment are especially useful in preparing the patient for operation when the metabolic rate is above +50 per cent.

Hyperthyroidism is a rapidly progressive disease. Permanent heart damage keeps pace with its advance. While conservative treatment should be given a fair trial, the tendency to procrastinate and dilly-dally along with these toxic goitres can not be condemned too strongly. Treatment must not only be beneficial but positively curative, reducing and keeping the metabolic rate well below +20 per cent. Above this point, heart damage is still going on, even though the patient is much improved.

The use of Roentgenotherapy should be controlled by frequent determinations of the metabolic rate and quickly followed by resection if continued and rapid improvement does not occur.

Malignant growth—Carcinoma, sarcoma, etc.: These conditions are relatively rare but are not infrequently seen. The diagnosis is based upon the same principles here as it is elsewhere in the body, namely, steady growth with fixation to the surrounding tissues. Naturally these tumors must be removed carefully and after that the area should be well treated with X-ray or radium.

SUMMARY

(1) It is necessary to determine accurately the type of goitre before rational treatment can be given. The basal metabolic rate is an important aid in corroborating the clinical findings.

(2) X-ray or Radium therapy is indicated in simple hyperplasia and hyperplastic goitres only. It is contra-indicated in colloid, cystic, nodular and adenomatous types.

(3) While the treatment of goitre is essentially surgical, medical treatment, Roentgenotherapy and radiotherapy are sometimes curative and are often helpful in decreasing thyroid activity and in preparing the patient for operation.

177 Post Street.

A LABORATORY AND CLINICAL STUDY OF THE BACTERICIDAL ACTION OF SOLUTIONS OF RADIUM EMANATION

By JOHN ALBERT MARSHALL, D. D. S., Ph. D.,
San Francisco.

From the Radium Laboratories of the University of California Hospital; the Research Laboratories of the George Williams Hooper Foundation for Medical Research and of the College of Dentistry, University of California, San Francisco.

Recent observations upon the use of radium emanation indicate that there is a possibility of employing this substance in the treatment of chronic dental abscesses. Until further laboratory data can be obtained, it appears advisable to mention briefly the results thus far recorded, with the hope that other workers in this field may be sufficiently interested to verify some of the conclusions.

The bactericidal action of radium has been studied particularly by Lequeux and Chrome,¹ and Iridell and Minett.² In their experiments they exposed different organisms to radium emanation for varying periods of time with a noticeable inhibitory effect upon the growth of cultures of streptococcus. Although the author has not repeated the experiments referred to above, his clinical findings are in apparent accord with the deductions offered. Bacteriological examinations of the treated canals indicated sterility in 85 per cent of the cases. In fact, the summary presented points to the possibility of a new application of radium in the treatment of certain diseased conditions.

The apparent success which has attended the radium therapy of skin lesions suggested the advisability of developing a modification of the present method of application which would make possible the study of the effects produced by this agent on chronic dental apical abscesses. A summary of nearly a year's observation of clinical cases shows that lesions of this type yield readily to the new therapy, and that up to the present time no untoward effects of the radium treatment have been observed.

Through the courtesy of Dr. Howard Morrow, Dr. Laurence Taussig, and Mr. L. B. Clark, it has been possible for the author to secure capillary tubes containing radium emanation. These tubes had been used in the skin clinic and eye clinic for various purposes until the "de-emanation" had

proceeded to such an extent that further application for this work was purposeless. Although the degree of radiation is recorded in the tables in terms of millicuries, the measurement of the Beta radiation from radium *D* and *E* has not been made.

Radium emanation or Niton is a gas, the disintegration products of which are solids. It is a solution of the solids which is being employed. That this solution contains alpha, beta and gamma rays is known, but the effect upon diseased tissue is perhaps due to the predominance of the beta radiation coming from radium *D* and *E*. It may be recalled that Tarnowsky³ quotes Hektoen to the effect that radium "emanation" inhibits phagocytosis and, hence, lowers the natural resistance of the affected part; but in these experiments I have employed, as already stated, a preponderance of the soft beta rays.

METHOD OF PROCEDURE

A small amount of Ringer's solution may be rendered radio-active by crushing in it a capillary tube containing a known quantity of radium emanation. This operation is conveniently accomplished by placing the tubes in a sterilized mortar of about 20 cc capacity, covering the tubes with Ringer's solution and then crushing them. The preparation is transferred to a suitable container and carried to the operating-room. On account of the rapidity with which the radio-activity of this solution diminishes, it was found advisable in this research to crush the tubes at the exact time at which the experiment was performed, but no more than an hour was permitted to elapse between the preparation of the solution and its application in the clinic or laboratory.

The radio-active liquid was carried to the root canals of the tooth by means of J. & J. sterilized cotton points. These were sealed in the canals for a period of from one to four days. Subsequently the treatment was removed, the pulp canals tested for sterility, and finally filled. With one possible exception, there has been no evidence of succeeding soreness or pain. The exception referred to is one in which the pericementitis resulted more probably from mechanical trauma incident to the previous curetting of the canal than to the action of the radium itself. The amount of solution carried to the tooth averaged 0.05 cc.; in this there was approximately 0.0630 millicuries of radium emanation. The variation in the dosage is noted in the appended table.

Table I

Millicuries of tubes *	Millicuries per cc. of solution	Amount placed in tooth
6.0	1.20 per cc.	.060 millicuries
7.9	1.58 " "	.079 "
5.5	1.10 " "	.055 "
4.6	0.92 " "	.046 "
9.1	1.82 " "	.091 "
7.5	1.50 " "	.075 "
6.3	1.26 " "	.063 "
5.3	1.06 " "	.053 "
13.8	2.76 " "	.138 "

* Not freshly prepared. These values were computed from tubes which originally contained a radio-activity varying from 50 to 100 millicuries.

Table II

Summary of Twenty-seven Cases

Clinical condition	Treatment	Results
Chronic apical abscess.	Radium applied four days.	Canals filled. No unfavorable symptoms after ten months.
Infected pulp with acute pericementitis.	Radium applied seven days.	Pericementitis very severe. Tooth extracted.
Chronic apical abscess of long standing.	Radium applied seven days, removed. Second treatment given.	Canals filled and no unfavorable symptoms after ten months.
Acute abscess.	Two treatments of radium of three days each.	Canals filled. No unfavorable symptoms after six months.
Chronic apical abscess.	Two treatments of radium of three days each.	Canals filled. No unfavorable symptoms after six months.

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THE MISSING LINK IN OUR OPERATIVE TECHNIQUE

By P. CAMPICHE, M. D., San Francisco

For several years I have intended to call the attention of the surgeons of the West to a weak point in the work of our operating-rooms, namely: the lack of nurses properly trained to assist at major operations.

The prevailing system consists in having the pupil nurses spend, in the operating-rooms, three or four months of their training, during which time they assist as best they can at all major and minor operations. The whole thing has been arranged with the sole idea of suiting the nurses three years' course, and while the system is eminently advantageous to the pupil nurse, I claim that it is unfair to the patient and has no regard for the convenience of the surgeon.

I recognize that most pupil nurses do their best, are willing workers, eager to learn, and are quite in earnest about their duties; but alas, they are sadly lacking in experience, and good will cannot make up for that! Time and again it happens to me, after embarking on a serious abdominal operation, to discover that the nurse present had never seen a laparotomy before. When I remark to her that something is not correct, she tells me quite frankly, "How could I know this? I never saw a laparotomy in my life!" Such admissions used to disturb me greatly and I was often in fear that something serious would happen; but I tried to make the best of the situation and, after much explaining and much waiting and sending for instruments that have been forgotten and changing sutures that had the wrong size, etc., etc., I manage to finish in two hours an operation that should not last more than one.

I would not say that the nurse's inexperience has been directly injurious to anyone in any case that I know of, but I contend that these delays unnecessarily prolong the anesthesia and operative shock and are directly detrimental to the patient. It is the unnecessary loss of time and the clumsy technique that are objectionable.

I am not a friend of those who operate by the clock and who try to make surgery a sport, and come and tell me that they have removed an appendix in six minutes while the previous record was six and a half minutes. But all the same, I find that in many cases with no special difficulty our operations are entirely too slow. About one-third of the time is consumed in sending for this and boiling that and trying needles, etc., etc. The days of pioneer surgery are past. Most operations have now become routine work and perfectly regulated affairs, with little place for unexpected developments and unforeseen complications. Therefore, there is no reason why the assisting nurse should not be well acquainted beforehand with all the details of this work.

Then a word about the surgeon's peace of mind. The feeling of insecurity, the necessity of constantly watching, of checking up the sutures and the needles and all the instruments that are passed to him, is an unnecessary hardship and a strain on his mind, when it should be left entirely

clear and free to grapple with the difficulties of the case.

At the time that I was being trained as a young surgeon, the sister assisting at all major operations had filled that position for seventeen years, and I understand that they have kept her there ever since! She would put into our hand the right instrument or needle at the right minute, and this without having been asked for it, and without a word being spoken. She taught me how to do a gastroenterostomy and an intestinal resection, and I am not ashamed to admit it. I once heard the chief, who was in a happy mood that day, tell her, "Sister, some day I will let you do a gastroenterostomy."

All the surgeons in Europe and, I believe, also in the East have in their hospitals one or two of these trusted nurses to help them in their operative work. In fact, many men known for their brilliant technique owe much of their success to the admirable co-operation rendered by these clever nurse-assistants, and they would not think of doing anything worth while with a beginner, lest this would injure their reputation!

Why should it be impossible for the hospitals to make the necessary change in their staff? Each operating-room of consequence should have one or two graduate nurses under a two or three year contract, engaged especially to assist at all major operations and serious cases. The head sister or the head nurse would be the one to decide which are the cases requiring the presence of this experienced nurse, so as to make sure that such valuable assistance would not be wasted on small things. These positions could be given as a sort of reward to nurses who have shown a special aptitude for that work during their training, and who possibly would be willing to take a post-graduate course of a few months in this particular branch before taking up their new duty. It seems to me that this would be a fine field for a bright and intelligent woman anxious to engage in some responsible and eminently useful occupation.

For all that, the education of the student nurses would not have to be neglected; on the contrary, they would first act as aids to the first nurse and would have a chance to see a few major operations without bearing, themselves, the responsibility as they often do now; then later they could be left alone. I fully realize that we surgeons have a clear duty to contribute to the instruction of the pupil nurses, but I maintain that this should be done in simple cases first, in order to avoid any disturbance, and not in difficult or even critical interventions, as it now often happens. Then the rights of the patient have to be safeguarded, too. Most hospitals make a good charge for the use of the operating-room, and for this the patient is supposed to be entitled to the best attention in every respect; and he is not getting it now, if he has to stay two hours on the table for an operation that with proper assistance could easily be finished in an hour.

I have talked to some of my friends about this matter and I am convinced that there is a demand right now for competent nurses to assist at major operations. I am certain that surgeons would

patronize the hospitals offering them such additional facility. Personally I would send my work there, regardless of previous affiliations, first, for the sake of the patient whose interest is paramount in this matter, and second, for the sake of our surgical technique, which ought to tend more and more towards perfection in every particular.

IMPROVEMENT FOLLOWING TONSILLECTOMY CLINICALLY EXPRESSED *

By HENRY H. LISSNER, M. D., Los Angeles.

In taking up the end result of tonsillectomy and its relation to the clinical manifestation of pre-existing disease in the short time allotted me to discuss this subject, it will only be possible to touch some of the more important points. The subject is a particularly far-reaching one, and I will briefly give my impressions of some of the most important clinical manifestations of absorption from the tonsils in relation to certain entities which have impressed me most.

The upper air-passages and the influence of infected tonsils upon the upper respiratory tract has been excluded from my discussion. If we then start with the neck, we have to deal with the influence of tonsillar infection upon the thyroid. It is a well-established fact that certain forms of toxemia or pus absorption, particularly from the tonsils, have a definite influence on the thyroid. This is evidently manifest in two types of cases; first, the adolescent or pre-adolescent type of thyroid, which is physiological in character up to a certain point, and the adult type which is pathological. Those who have had experience with the former type must have been impressed by the fact that following tonsillectomy the active thyroid symptoms are greatly diminished. That certain types of nervousness, headaches, change in temperament and disposition, which could be attributed to active thyroid, are immensely improved. In the adult type the tonsil plays as important a role from the standpoint of thyroid irritability as other foci of infection. Naturally, one must eliminate and search for other sources of possible thyroid irritation before considering the tonsils the sole source of infection. One case, in particular, illustrates this point:

A young woman with a vascular goitre, with marked thyroid activity and enlarged tonsils, had her tonsils removed. About four weeks after the tonsillectomy she developed an acute appendix, which was also removed, a ligation of the superior thyroid vessels was done at two sittings, following which the thyroid was removed. This young woman made a perfect recovery, and while she had been invalided for about two years, six months after the thyroidectomy she returned to her work with a normal pulse and with a decided improvement in her general condition.

That infected tonsils do have an influence on the production of thyroid symptoms and irritation, and that following tonsillectomy a definite amelioration of symptoms must be conceded, so

that in dealing with thyroid disease of either adolescent or adult life, the role of the tonsil in its relation to the production or the increase of the symptoms due to definite thyroid disease must be considered.

With regard to the cervical adenopathies, and the definite types of painful glands, and the secondary enlargement of the bronchial glands, there is a definite improvement shown following tonsillectomy. The pain in the lymphnodes in the neck is due primarily to tonsillar infection, and that this form of irritation or infection does extend to the bronchial glands must be conceded.

This brings us to the bronchial manifestation of respiratory infection secondary to the tonsils. The forms of dry, hacking cough persistent with or without attacks of tracheitis or true bronchitis are frequently met with as the result of chronically inflamed tonsils. The degree of bronchial irritation depends upon the amount of absorption from the tonsils, and it is in direct proportion to the activity of the tonsillar infection whether it is an active tonsillitis or an acute exacerbation of chronic tonsillitis. Acute tonsillitis, per se, is not as frequently responsible for bronchial irritation as is the chronic variety, particularly that form of chronic tonsillar absorption which, by throat examination, shows a few enlarged tonsillar crypts and some scar tissue in the tonsils. Such tonsils appear harmless, but in cases of recurrent attacks of bronchitis, or, as the patient expresses it, "catching cold all the time," the removal of such tonsils is usually followed by a clearing up of the bronchial condition and a diminution in the size of the cervical and bronchial glands, when not complicated by tuberculosis.

In certain forms of heart disease the influence can be directly shown; not only is this true in children, but also in adult life. Types of irritable heart, tachycardia, definite arrhythmia and myocardial changes are improved by the removal of the diseased tonsils. Where the myocardium alone is involved the improvement is much more pronounced than where the valves have been attacked. Endocarditis and pericarditis do follow as complications of acute tonsillitis, and where a diseased tonsil is removed in the interim following such an attack, the improvement of the heart is very much slower, and the permanent damage is less likely to disappear than when the heart muscle alone is involved. There seems to be a greater ability toward the heart muscle regeneration with less permanent damage resulting than where the endocardium or pericardium is affected.

In the gastro-intestinal tract the symptoms of nausea, vomiting, toxic diarrhoea and pain are usually much improved following tonsillectomy. However, where there is a focus of secondary infection, such as ulcer of the stomach or appendicitis, these conditions do not materially alter in character, but run the usual course independent of tonsillectomy. Naturally, there are a great many symptoms referable to the gastro-intestinal tract, such as pain, belching, so-called indigestion, eructations of food, hyperperistalsis, etc., for which the diseased tonsil has been held responsible, and

* Read before the Ear, Nose and Throat Section of the County Medical Society.

which very frequently remain after tonsillectomy, but in these cases they are still persistent from another source of irritation. In other words, the result of tonsillectomy and its influence on certain conditions of the gastro-intestinal tract is not as brilliant as it is in some other fields.

This same observation, I think, holds true for infections of the gall-bladder, as an infection once established from whatever cause in the gall-bladder, must be treated as a definite disease of that organ independent of its primary source. In gall-bladder infection there is a particularly definite etiology and it is often difficult to ascribe it to a direct tonsillar infection. The etiological factors are so numerous that it can only be ascertained by careful and painstaking investigation, both clinically and laboratory, as to whether or not the tonsils were the primary path of the infection.

Probably the most brilliant effect of tonsillectomy is seen in certain types of joint disease. One need only mention the acute arthritides, the most pronounced example of which is acute articular rheumatism, to note the influence of tonsillectomy on this particular condition. I would make this distinction, however, and tend mostly toward the general classification of arthritis, of which acute articular rheumatism is a form, and take up secondarily the other types of chronic arthritis as definite diseases of so-called arthritic nature.

Various theories are advanced and much discussion has been had in medical literature as to the etiology of certain forms of chronic arthritis. There are, however, definite cases in which the etiology can be directly traced to the tonsil. I have several of such cases in mind where cultures made from the tonsils have shown the same type of organism as was recovered from the joints of acute, septic arthritic cases which were not of the type of acute inflammatory rheumatism. Such cases following tonsillectomy show a decided tendency to improvement, and in that type of case, as compared to the rheumatic type, there remains behind definite joint changes which do not occur in acute inflammatory rheumatism. This type of arthritis even after tonsillectomy also shows a tendency to remissions, not perhaps as frequently as they would before, but they do occasionally light up in isolated joints which have been previously affected. In acute articular rheumatism, when the acute inflammation has subsided, there is no residue of joint involvement, and if the individual has escaped the heart complication of the disease, the tendency to recurrence is reduced to a minimum.

In certain forms of acute nephritis there are times when the condition can be directly traced to tonsillar infection. This is when a hemorrhagic nephritis follows an acute tonsillitis. In this type of infection the damage to the kidney is of a more permanent nature than is met with in the ordinary and more frequent form which is shown by albumen, a few casts, backache, and other milder symptoms. This type of toxic nephritis clears without leaving any permanent damage to the kidneys after tonsillectomy. Cases of multiple

abscess of the kidneys naturally run a more chronic course, and leave in their wake permanent kidney disease. It must be remembered that not infrequently then the kidneys show the effect of tonsillar absorption, and the nature and permanency of the damage depends on the nature of the involvement of the kidney tissues.

In no form of disease, so far as the effect of tonsillectomy upon it is concerned, is the result as striking as it is in those forms of acidosis of toxic, rather than diabetic origin. I am firmly of the opinion that acidosis, particularly in children, is very much more frequent as the result of tonsillar absorption than we ordinarily think. This condition is met with in young children, and the cause of the illness of the child is usually put down as dietary indiscretion, or an acute intestinal upset. It starts with heaviness and drowsiness, and sometimes goes into a mild coma or delirium with fever, nausea, vomiting, headache and a general lassitude. The children are fretful when disturbed for examination, peevish and hard to manage. The general physical examination is negative. Such attacks occur at intervals. The child is usually given a physic, the diet cut down, the fever causes it to drink an abundance of water, and in three or four days the child recovers. An examination of the throat of these children will show tonsils not as frequently acutely inflamed as with subacute and chronic inflammation. The tonsils are sometimes large with prominent crypts which may or may not be blocked; sometimes rudimentary in character and buried, but still showing the evidence of chronic inflammation. The urine shows acetone and diacetic acid, but the blood sugar is usually within normal limits. Tonsillectomy in such cases works an absolute cure. In fact the result in this type of case is almost spectacular. These children pick up, grow, gain in weight, become lively and normal in every particular.

There still remains to be discussed the influence of the chronic tonsils on the so-called neuralgias, neuritis, headaches and other indefinite types of nervous manifestations which are attributable to infection. These conditions respond very quickly to tonsillectomy. Such cases are recognized by severe headaches, either unilateral or bilateral; if unilateral assuming the type of supraorbital neuralgia, if bilateral being expressed by severe pain, fullness, pressure over the frontal or parietal regions accompanied by severe nervous manifestations such as irritability, sometimes a definite mania as was witnessed in a case observed by Dr. Montgomery and myself, sometimes accompanied by nausea and vomiting with head pain, fleeting joint symptoms, palpitation, and an irregular heart. These cases usually materially improve without recurrence following tonsillectomy.

Just a word in conclusion about cultures in the bacteriological studies of the tonsils. A great deal of information can be obtained by tonsil cultures in those cases where the tonsils are manifestly inflamed or show evidences of acute or subacute inflammation. A culture taken from the tonsillar crypts rather than from the surface

of the tonsil will not infrequently show hemolytic streptococcus and staphylococcus, or some other type of organism which would be of sufficient virulence to cause absorption and still not produce acute local evidence of its presence. It would seem to me worth while to culture innocent looking tonsils to determine whether or not they may be harboring such a germ.
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TIC DOULOUREUX *

By HOWARD C. NAFFZIGER, M.D., 291 Geary Street, San Francisco, Cal.

In the treatment of a series of cases of tic douloureux in the neuro-surgical service at the University of California Hospital, it has become evident that certain misconceptions regarding this disease and its treatment are prevalent.

Operations upon the gasserian ganglion are, in the minds of the profession, highly dangerous procedures followed by great deformities. Of all the major operations in surgery there are few, if any, which carry a lower mortality than the radical operation for the cure of tic douloureux. The risk to the patient is not to be compared to the risk assumed in operation upon the gall bladder and stomach. The mortality in radical operations for tic douloureux is reported from many of our leading clinics. In the Johns Hopkins Hospital service, the Peter Bent Brigham service at Boston, the University of Pennsylvania Hospital service, the Mayo Clinic and the University of California Hospital service in 1920, over 150 operations have been done, with but one death, and this from a cause not directly connected with the operation. Cushing has reported over 300 consecutive cases without fatality.

The results obtained from the operation are generally quite satisfactory. Careful preoperative diagnosis is the first essential, and the Gasserian operation should be limited to appropriate cases. If the operation is performed for all types of intractable pain over the face, the results will be far from satisfactory. In making a diagnosis of tic douloureux the character of the pain is the deciding factor.

What, then, is the character of the pain? It is sharp, jabbing and lightning-like. It occurs in short paroxysms, and then stops completely. There is no continuous pain. The recurrence of the paroxysms may vary from a minute to hours, but between paroxysms there is complete relief.

The pains are characteristic of true tic douloureux. While other features of the disease may need a word, the characteristic pain is the determining factor in diagnosis, and if radical operations are confined to those who have it in great severity, the results will be gratifying.

The cause of this disease is not yet fully determined. Ascending neuritis and chronic inflammation of the Gasserian ganglion have most supporters. In the literature the average ages of onset given is between forty and fifty years. It rarely appears before thirty years, and in our series

the average age has been sixty-two years. The cases are about equally divided between the sexes. The right side of the face is more frequently involved than the left. Bi-lateral involvement, while not rare, is infrequent. It is exceedingly rare for the ophthalmic division to be first involved. The favorite sites are in the infra-orbital or inferior dental nerves. No authentic cases of tic douloureux have been cured by removal of teeth or treatment of sinus diseases. In tic, trigger points are common. The slightest touch or movement of these areas initiate an attack. These areas are often about the angle of the mouth or also of the nose. In certain patients the pain may be limited to the division of the nerve primarily affected. More frequently it spreads to other branches.

The paroxysms of pain recur at varying intervals from less than a minute to a part of a day or several days. Complete remissions of months, or occasionally years, are not uncommon.

Pain is always severe. A recent case in our clinic was that of a man, seventy years of age. He was found lying on the steps of the hospital with his few belongings in a burlap sack. His beard had been unshaven for weeks, face unwashed, hair matted together, and body emaciated from long inability to take food. He was unable to speak, eat, or touch his face. The fear of the approach of anyone, of a touch or a draught of air, and his terror-stricken appearance made one wonder how he had escaped morphine addiction or self-destruction, to which these patients often turn for relief.

For pains occurring over the face in the distribution of the fifth nerve true tic forms one group. In this we have classified those cases having pain of the type described above. Cushing has divided these into major and minor neuralgias. The etiology is as yet obscure, and since in essential points the disease is the same and varying only in degree of severity, we have preferred to group them as mild cases and severe cases, and on this basis to vary our treatment.

The radical operation is indicated only on the severe cases. Removal of the Gasserian ganglion has, of recent years, entirely given way to the simpler and less dangerous procedure of severing or avulsing the sensory root. Permanent loss of function of this cranial nerve is a small price to pay for relief in extreme cases. In those of less severity the disturbance caused by the loss must be weighed against the degree of pain the patient is having, and the possibility of satisfactory relief by a simpler surgical procedure. This decision must be made by the surgeon. To each patient, the pain of his particular tic is most severe. He is unable to foretell how much the feeling of numbness or stiffness, which follows section of the sensory root, will disturb him. The surgeon must judge, bearing in mind the severity of the pain, its character, and the temperament of the patient. Paresthesiaes following the radical operation are not uncommon and with fear of pain forgotten, the patient may eventually come to believe that the pain was less troublesome than these odd sub-

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

jective feelings. With such considerations in mind judgment is often difficult.

While the operative risk is small, an operation which leaves the patient with unpleasant paresthesia is not a satisfactory one. When there is any question in the surgeon's mind as to whether he is dealing with true tic or some other type of pain, radical operation should be deferred and some measure adopted which is not permanently destructive to the nerve. Of these procedures alcohol injections of the nerve trunks and neurectomies may be considered. Of the nerve fixatures used, alcohol has been generally adopted, and has completely superseded the use of such agents as osmic acid. Both alcohol injections and neurectomies give but temporary relief. The injections are limited in their use to the second and third divisions of the nerve. When successful they give entirely satisfactory relief for a variable period—usually a few months to a year. There are definite risks associated with their use, and apart from the risks there are other disadvantages. The best that can be said for them is that when successful they give temporary relief and offer a clinical test of the results from blocking of the nerve. The disadvantages are, the injection is a painful performance. It is customarily done without general anesthesia, in order that the pain experienced may give indication when the nerve is pierced.

Serious complications are too common. Even in experienced hands the injections are often unsuccessful. In inexperienced hands, injections are not only more frequently unsuccessful, but complications are common. At the University Hospital one patient has come for treatment, having lost an eye as the result of alcohol injections. Corneal ulcers are common. Sloughing of the middle ear, persistent tinnitus and dizziness have been seen. A recent case with a mild tic has come to us with persistent diplopia, following an attempt to inject the first division. For such reasons it is our feeling that alcohol injections are to be considered in themselves major procedures. They have their place in surgical therapy, but are not to be undertaken inadvisedly.

Regarding injections of the Gasserian ganglion itself, this measure may be dismissed on the ground that the risk of it is greater than section of the sensory root of the ganglion.

Most surgeons favor the alcoholic injections of the second and third main divisions of the fifth nerve rather than neurectomies, on the ground that all the branches of these divisions are in this way blocked and no scar remains.

Peripheral neurectomies are, of course, not to be done except when the pain is entirely limited to an accessible branch. In such they have certain advantages, and have seemed to us to be the treatment of choice. It is recognized, of course, that the relief is temporary, but this is also true of the injections. It offers the same clinical test as to whether relief is obtained or not. Although temporary in effect, it may be all that is necessary in the very old and feeble. As to the scar, this has no significance, and if the operation is properly performed will be barely visible.

The advantages are that an anesthetic may be used. The operation is a minor one, and there is no question of locating the nerve as in blind punctures. The relief obtained is certain; it averages longer than after injections, and without the same dangers. When one is dealing with one of the severe cases of tic there can be little justification in postponing the radical operation and subjecting the patient to repeated painful temporary measures. The mortality of the operation for permanent relief is certainly not greater than one or two per cent in experienced hands.

The complications of the operation deserve comment. The idea seems widely disseminated that marked deformity of the face, hideous scars and facial paralysis follow the operation.

One of the complications of the operation is a peripheral facial paralysis. It is not, however, of frequent occurrence. There seems to be two types, one in which weakness of the facial muscles on the operated side appears on the second or third day after operation; gradually increases until it is complete or nearly so. It gradually clears, and the muscles are back to normal in about three weeks.

There is a second type of peripheral facial palsy occurring on the same side, which may be evident at the conclusion of the operation. We have had one of these in our series. It appeared at once after an avulsion of the sensory root. It was complete and remained so for six months, since which time it has gradually but steadily improved. The recovery to date is perhaps 50 per cent. We have had no permanent facial palsies. The reason for the appearance of them is not known; the operation is, of course, not near the facial nerve; the skin incision is well above it, and the intracranial work is in the middle fossa. Stripping of the dura from the petrous bone followed by hemorrhage about the seventh nerve, and hemorrhage into the canal carrying the nerve have been suggested as causes. Adson advanced the idea that damage within the pons following the avulsion of the fifth root is accountable. Against this is the fact that facial palsies occur also after section of the root without avulsion. The cause of the palsy is as yet unsettled. Fortunately it occurs infrequently. Other complications are corneal ulcers followed by opacities.

During the year 1920, on the division of Brain Surgery at the University of California Hospital, ten cases have had operations on the Gasserian ganglion for the relief of tic douloureux. There have been no deaths. The average age in this series is sixty-two years. We have had one complete peripheral facial palsy follow operation. Return of function in the paralyzed muscles began in six months and is continuing. In the same case there was a corneal ulcer, now healed, which has left a considerable opacity, but still permits of a useful amount of vision in the eye.

One other case had a small corneal abrasion which healed without any opacity.

Corneal ulcers are usual in cases having facial palsy. The lack of sensation in the eye renders slight injuries or irritation inappreciable to the patient, and the dryness of the cornea permits par-

ticles to adhere. If these are combined with inability of the lids to close, injury is unavoidable. The danger of corneal complications seems to decrease after the first few weeks. Another post-operative complication is hemorrhage into the middle ear. This is likewise uncommon. Accurate figures are not available, because it is rarely mentioned in the literature and is not generally appreciated.

Unilateral paralysis of the muscles of mastication was formerly the rule. At present it is possible frequently to spare the motor root.

SUMMARY

All cases of intractable pain over the face are not tic douloureux.

This diagnosis should be confined to those having heavy paroxysms of the type described, but without any continuous pain.

Temporary relief and diagnostic information may be obtained from alcohol injections and neurectomies. The latter have a valuable place in treatment. For permanent relief the radical operation of severing the sensory root is the preferable procedure. It involves but slight risk either on the score of mortality or complications.

PLASTIC SURGERY IN AND ABOUT THE EYELIDS*

By RAYMOND J. NUTTING, B. S., M. D., Oakland, Cal.

Plastic surgery in and about the eyelids finds its chief indication in the relief of those deformities due to the contraction of cicatrices from burns; deformities resulting from defective congenital development; loss of parts resulting from injury, which has been especially brought to our attention on account of the late war; removal of malignant growths; the destructive ulceration from other general diseases; or loss of function of the lids from lesions of the third or seventh nerves.

One should have a thorough knowledge of the surgical anatomy and histology of the lids and surrounding parts before doing plastic work in this region, so I shall not take any of your time by describing same.

A guarded prognosis should be given in most plastic work about the eyelids, and it is of the utmost importance that a good photograph be taken before and after each operation, in order to avoid undue criticism by the patient, or his friends. There is no question of the value of such photographs for the physician's records and for future reference.

In general, whatever method one uses, whether it be pedunculated flaps, grafts of different types, the epithelial inlay or outlay, it is very important that great care be used in obtaining facial symmetry—symmetry of features, on the one hand, and symmetry of movement, on the other. Great care must be taken also in the minor details, such as accurate approximation of skin edges; on the even application of grafts in a state of normal skin tension; and, in most cases, a gentle pressure should be evenly maintained to prevent the collection of any exudates, and insure the

proper nourishment of the grafts. Lastly, *asepsis* and a properly prepared field, and not too much speed are important points in the operation.

There are broad general rules governing repair of cicatricial tissues, whether it be of a distorted lid or a contracted socket. Every such condition presents problems peculiar to itself, requiring independent study and treatment, so it is very difficult to give all these methods of treatment in a paper at this time. Some operators prefer a Wolfe graft; others, pedicle flaps; and others, Thiersch transplants, whether epithelial inlays or outlays in certain cases, or simple grafts as the case may present itself.

An operator is naturally in favor of that operation from which he has obtained the most satisfactory results, but possibly in selected cases just as good a result can be obtained from one method as from another.

There are some conditions which are especially adapted to the epithelial inlay or outlay, such as extensive burns about the lids, face and forehead, resulting in extensive cicatrices which would make a pedicle flap impossible. Great progress was made in this work during the late war, by Esser, Gillies, Waldron, Risdon and others, who have all done great work in plastic surgery about the face. As it will be impossible to take up buried skin grafts for correction of obliterated cul-de-sacs and orbit in the time permitted, I will limit my remarks to pedunculated flaps and simple Thiersch autodermic grafts.

The replacement or readjustment of tissues by fashioning and mobilizing flaps of adjoining skin should be chosen whenever possible, and is especially useful in restoration of the lower lid.

The pedunculated flap has its greatest usefulness in restoration of the lids or canthi, especially where there has been great loss of tissue. It is also used where the nutrition is poor, which, of course, would be fatal for a skin graft. The advantage of pedicle flaps lies in their good vitality, which has the effect of making them more resistant to infection; and, secondly, these flaps do not shrink with time. Their only disadvantage is that they leave a linear scar, but this, it is true, becomes less conspicuous as time goes on, and, if proper care is taken these scars eventually can be scarcely seen. It is also very important that the base be not too narrow and not more incisions than are absolutely necessary be made. The skin edges should be very carefully coaptated, strict asepsis carried out, and all hemorrhage stopped. The wound should be dressed with a dusting powder, such as aristol, covered with perforated rubber tissue or dental wax, and an even pressure-bandage applied.

The Thiersch method, on account of its simplicity, is the method of choice about the lids. Thiersch grafts are most successful when support is not needed, particularly in the upper lid, but we have all seen good results from grafts in the lower lids in special cases.

The grafts are usually taken from the arm or inner side of the thigh, where very few hairs are found and the skin very thin like that of the lids. The part to be excised is shaved and scrubbed

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

carefully with soap and water, sponged with ether and alcohol, followed by bichloride solution, excess washed off with salt solution and the area covered with sterile gauze-dressing moistened with normal salt.

In cutting the graft, the knife and skin area should be coated with sterile vaseline and the excess wiped off. This step eliminates the tendency of the skin to move with the knife. Dr. Walter Parker, has been using this method for years, and the use of vaseline has not been found to interfere with the healing process.

The surface to be grafted requires very careful preparation. Hemorrhage should be entirely controlled, and the surface allowed to glaze over. The graft retains its vitality so long that the length of time between the cutting and application need not be considered. When the graft is once in place it should be disturbed as little as possible. The graft should cover the entire surface, as well as slightly overlap the skin margins, or any possible contiguous grafts. There should be no tension in any direction.

The most important point in all skin grafting is overcorrection, and this should always be done. In repairing the skin of either the upper or lower lid, after the wound has been properly prepared, the lower lid should be drawn up over the upper, or vice versa, as the case may be, far enough to smooth out the grafted area and fastened by sutures passed through the lid margin so that they will not interfere with the wound. They also should be fastened above in the forehead or below, as the case may be, to hold the lid in place.

METHOD OF DRESSINGS

1. In advantageous surroundings and for small grafted areas the open-air treatment has the advantages of lessened tendency for the graft to become displaced by the dressings. After the graft has been placed in position, aristol is dusted over the edges, and no dressings applied other than for protection. Rolls of gauze are placed around the grafted area in such a manner that they do not interfere in any way with the edges. This method is suitable only on small flat surfaces where there is little danger of serous exudates lifting off the grafts. Ideal patients who will be quiet and realize the importance of a good result contribute to the success of this method.

2. Personally, I prefer the closed method, since we have been using dental wax for covering the grafts. An impression of the area to be grafted is made with sterile dental wax. The Thiersch graft is placed around, or over, the wax, and then inserted or placed over the denuded area. The graft, under suitable conditions, may be placed and then covered with the dental wax. The wax is then carefully covered by a dressing held in place by adhesive, and the whole covered with a well-placed roller bandage.

The dressings can be removed on or about the fourth day. The wound is carefully cleaned with pledgets of cotton or applicators moistened with

boric acid or bichloride solution, being very careful not to remove the grafts. If the graft looks nice and pink, and no secretions are present, the dressings may be discarded, the wound dusted over with aristol, and the open-air treatment used. Later, as the grafts begin to dry, it may be advantageous to cover them with sterile vaseline. About this time, or a little later, massage of the grafted area and surrounding skin is very helpful, as it also tends to soften the graft and renders it more movable, and it assumes more rapidly the appearance of the surrounding skin.

CONCLUSIONS

1. A photograph should be taken before and after each operation.
2. Strict asepsis and a properly prepared field.
3. Pedunculated flaps should be used wherever possible.
4. Use the method with which you are most familiar.
5. The Thiersch method for grafts is the one of choice around the eyelids on account of its simplicity.
6. The closed method of after-treatment has more advantages for most cases.
7. Always aim at overcorrection in all graft transplants.
8. The use of vaseline makes cutting of graft much easier.
9. Keep graft from becoming too dry afterward.

THE NEW JOURNAL

THE CALIFORNIA STATE JOURNAL OF MEDICINE for many years has justly stood very high in the annals of state journalism. It has grown so that it is not possible to make any further expansion without changing the type of binding. With the January issue the JOURNAL comes out with an entirely new cover and a new type of binding. With this new binding and method of covering, we enter the field of larger journalism from a mechanical standpoint.

While for economic reasons, the first few numbers of 1922 will be limited to 96 pages and cover, it is expected that beginning with the May number we will have 108 pages, and we hope to enlarge to 116 pages before the end of the year. This advance, of course, will increase somewhat the expense of the JOURNAL, which we hope to offset by an increased income already provided for from members and by a slight increase in the space devoted to advertising.

The editor invites and welcomes correspondence and constructive criticism of any character tending to make the JOURNAL better.

THE DIAGNOSIS AND TREATMENT OF INTRACRANIAL HEMORRHAGE OF THE NEW-BORN—REPORT OF A CASE*

By EDWARD B. TOWNE, M. D., and HAROLD K. FABER, M. D., San Francisco.

Important advances have been made, in recent years, in the knowledge of the causes of intracranial hemorrhages of the newborn, and in the diagnosis of the different varieties. Treatment has also made notable progress in some forms, particularly in those due to a general hemorrhagic diathesis and in those occurring in the posterior cranial fossa. The object of this paper is to attempt to correlate pathology and symptomatology with the various methods of treatment. A case is reported that illustrates successful treatment of a lesion that was correctly localized, as well as needless surgery due to failure to apply all the possible diagnostic methods.

Etiology.—Recent papers by Warwick¹ and Rodda² have reviewed the theories of the causes of intracranial bleeding. The hemorrhages may be divided into two main classes, those due to trauma incurred in the passage of the child through the birth canal, and those due to disease of the child. The first class is purely traumatic; the second has no relation to labor, and the most frequent underlying cause is the hemorrhagic diathesis. Green³ was the first to appreciate the importance of the second factor. Warwick demonstrated the condition in eight of eighteen cases of intracranial birth hemorrhage that came to postmortem examination.

Diagnosis.—An attempt must be made to answer two questions before these cases can be intelligently treated. First, is the intracranial hemorrhage of traumatic origin, or is it one manifestation of the hemorrhagic diathesis? Second, what is the location of the hemorrhage? Neither question can be answered in every case. If the infant shows evidences of multiple hemorrhages, such as a cephalohematoma, petechiae in the skin, or bleeding from one of the body orifices, the diagnosis of hemorrhagic disease is easily made. But these signs do not always appear. Five of Warwick's eight cases of intracranial bleeding caused by the hemorrhagic diathesis vomited blood, but the other three showed no clinical evidence of the multiple clots that were found post-mortem. Determination of the coagulability of the blood has proved helpful in making the diagnosis. Rodda⁴ determined the curve of coagulation and bleeding times in the first few weeks of life, and showed² that in hemorrhagic disease of the newborn the times were prolonged.

The second question is of greater importance, for the selection of the proper method of treatment depends on correct localization even more than on differentiation between the traumatic and diathetic types. Seitz⁵ localizing classification is the most useful. He divided the hemorrhages into three groups—the supratentorial, the infratentorial, and the intraventricular. Various combinations are found; thus in Warwick's eighteen cases, six

had hemorrhage over one cerebral hemisphere, three over cerebrum, cerebellum and in the dura, three over cerebrum and cerebellum, one over cerebrum, cerebellum and in the ventricle, one over cerebellum, two in the dura alone, and two in the ventricle alone. Her series emphasizes the fact that the most common site is supratentorial, for thirteen of these eighteen cases had hemorrhage over the cerebrum alone or in combination. Cushing⁶ called attention to the unprotected pial veins as they travel from the cortex to the longitudinal sinus as particularly liable to injury from overlapping of the parietal bones during parturition. In attempting to diagnose the location of the bleeding, it is proper to consider the odds as in favor of the source being partly, if not entirely, the pial veins that empty into the longitudinal sinus.

The symptoms may be clear-cut and localize the trouble beyond question, but frequently they are confusing, or even misleading. Eliminating those that cannot be resuscitated, most patients cry and appear more or less normal for a time. After an interval of hours or days, symptoms appear. The infant may first refuse the breast, or cry continually, or be drowsy, or show increased reflex excitability, or have sudden attacks of asphyxia with respiratory disturbances. The fontanelle becomes full and tense, and there are convulsions in practically every case. In attempting to evaluate these symptoms it should be remembered that the largely non-medullated brain of a new-born infant makes him little more than a spinal animal, who will live under most adverse conditions provided the medullary centers are not too much implicated. So a large hemorrhage over the cerebrum may give no signs beyond those of increased intracranial pressure, while a small hemorrhage below the tentorium may be rapidly fatal. Disturbances of respiration with cyanosis, generalized convulsions and rigidity of the limbs point to infratentorial bleeding; while convulsions involving first or only one side, or palsies of face, arm, or leg, or lateral deviation of the head or eyes indicate a supratentorial lesion. There seems to be no way to detect an intraventricular hemorrhage from the symptoms.

Spinal puncture gives valuable evidence in localizing the bleeding. When the hemorrhage lies over a cerebral hemisphere the fluid contains little blood, and the withdrawal has no effect on the progress of the case. On the other hand, an infratentorial hemorrhage gives fresh blood, usually in considerable quantity, and removal is frequently followed by temporary or even lasting disappearance of cyanosis, disturbed respiration and convulsions.

Subdural puncture as a diagnostic procedure was suggested by Henschen⁷ and, apparently independently, practiced by Gilles⁸. A spinal puncture needle is introduced at the lateral angle of the great fontanelle and passed under and parallel with the parietal bone. Henschen recommended this puncture to confirm the diagnosis of a supratentorial hemorrhage and to prove which side was involved. This is unquestionably a most valuable method, provided it does no harm. If there is a

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

subdural clot near the longitudinal sinus, a carefully directed needle need not damage the cortex. But, remembering that the central fissure lies very little posterior to the fronto-parietal suture in the newborn, one wonders whether a negative exploration might not lacerate the motor area. In Case 2 of Green's second paper⁹ a negative puncture gave no ill results. Hemorrhage into the lateral ventricles can be confirmed or ruled out by ventricular puncture through the outer angles of the great fontanelle, but this procedure also carries some risk of injuring the motor cortex.

Visual inspection of the dura under the fontanelle after incision of the scalp enabled Murphy¹⁰ to detect clots over the cerebral cortex on both sides of the longitudinal sinus. This apparently neglected method ought to prove of great value, for it avoids the dangers of subdural puncture and requires only a short scalp incision, which may be extended for an osteoplastic exposure on either side.

Three cases reported by Potocki and Levant¹¹ illustrate the difficulties of diagnosis, even with apparently definite clinical localizing signs, without the help of fontanelle inspection or exploratory puncture. The first two cases showed motor signs pointing to a clot over one cerebral cortex, but both had intraventricular hemorrhage only. The third case had similar signs and was diagnosed hemorrhage into the ventricles, but at post-mortem examination no intracranial hemorrhage of any kind was found. Subdural puncture and fontanelle inspection would have been negative throughout, but ventricular puncture would have made possible a positive diagnosis in the first two cases.

Treatment.—Intracranial hemorrhages have been treated by four methods: (1) spinal puncture, (2) subdural aspiration or drainage, (3) removal of the clot through an osteoplastic window, and (4) measures designed to increase the coagulability of the blood.

(1) *Spinal Puncture.*—This was first proposed and practiced by Devraigne,¹² who reported a case in which the convulsions stopped, leaving the infant in apparently normal condition. Dutreix¹³ recorded five cases, of which three recovered and two died following removal of bloody fluid by spinal puncture. Henschen⁷ saw that spinal puncture gave good results in infratentorial, but could do not good in supratentorial hemorrhages. Green's⁹ Case 1, a typical infratentorial hemorrhage with apnoea, cyanosis, nystagmus and convulsions, cleared up with repeated removals of bloody cerebrospinal fluid and appeared normal on the fourth month. Brady¹⁴ treated three cases with spinal puncture. Two were apparently normal at three years and fourteen months, but the third continued to have convulsions and developed spasticity; post-mortem examination at nine months showed adhesions and flattening over a small area of the cerebral cortex. Foote¹⁵ had six recoveries and one death in infants showing respiratory distress and blueness, with or without convulsive phenomena, treated by spinal puncture and subcutaneous injection of horse serum or thromboplastin. One detailed case was an instance of hemorrhagic disease of the new-born. Good results are also recorded by Lippman¹⁶ and Vaglio.¹⁷

Spinal puncture, on the other hand, has had no influence in numerous cases in which it was used only for diagnostic purposes, and post-mortem examination has usually shown a clot over the convexity of the cerebrum. Thus Rodda's² Case 5 had a large hemorrhage over the entire right hemisphere, as well as smaller ones in the pericardium and the spinal canal, and died from intracranial pressure in spite of spinal puncture and repeated subcutaneous injections of whole blood. Rodda recognized that spinal puncture gave results only when the bleeding was below the tentorium.

(2) *Subdural Aspiration or Drainage.*—If aspiration through the great fontanelle is used as a therapeutic measure, it amounts to the same thing as drainage at that point. Gilles⁶ so used it, but his patient continued to have convulsions and died at nine months. Henschen⁷ advocated it in mild cases, and Green⁸ thought that if considerable blood were aspirated operation might be postponed or omitted. Murphy¹⁰ was the first to evacuate a hemorrhage over the cerebral cortex through a short linear incision. He first exposed the anterior fontanelle and saw through the dura evidence of hemorrhage on both sides of the sinus. After turning down an osteoplastic flap and removing the clot, the patient's condition seemed to contraindicate a similar procedure on the opposite side, so the fluid blood was partly evacuated through a short incision lateral to the longitudinal sinus. The infant made a good recovery, and the cerebral condition was considered normal when it died of gastro-enteric disease at five weeks. Simmons¹⁸ added rubber tissue drainage to Murphy's evacuation of a subdural clot through a short incision. He reported two cured cases, one of which gave an excellent result thirteen months after bilateral drainage. He saw the danger of adhesions from the portion of the clot that was not removed, but said that his operation was rapid, easy, and justified by the results. He thought that neither case would have survived Cushing's osteoplastic procedure, which he recognized as the more thorough and desirable method. Green⁸ recorded a case so treated by Murphy, in which post-mortem examination showed a clot overlying the cerebral convolutions and extending down into the longitudinal fissure. Cumston¹⁹ and Green⁹ have each reported a good result with the Simmons operation. Green felt that incision and drainage gave adequate relief, and was preferable to the osteoplastic operation.

(3) *The Osteoplastic Operation.*—In 1897 Chipault²⁰ said that the usual clot over the upper motor cortex was a surgical problem, and suggested that its removal would be easy and ought to give good results. Cushing⁶ was the first to successfully evacuate a clot through an osteoplastic window. He²¹ reported in 1908 that he had thus operated on nine cases, with four apparently perfect recoveries. Seitz²² and Meara and Taylor²³ reported two cases in which clots over the cerebrum were removed, but both died, and post-mortem examination showed that there was also infratentorial bleeding. Murphy and Torbert¹⁰ had a recovery following evacuation of clots by Cushing's procedure on one side, and through a

short dural incision on the other. Hubbard's²⁴ case, a fatality, is not easy to classify. He found clots over both cerebral hemispheres, probably through small decompressive openings, and cortical laceration resulted from attempts to enlarge the bone defects. Bailey²⁵ removed a clot from the motor cortex, but could not suture the dura or bring the bone flap into position because of cerebral herniation. His patient had a facial palsy and a flaccid arm on the thirtieth day. Strachauer²⁶ has done four craniotomies for cerebral hemorrhage in infants; one died at eight weeks, and the other three were seemingly normal. Rodda² reported two of Strachauer's cases in more detail. One (Case 8) was a typical Cushing procedure, the other (Case 9) was a "decompressive operation," which apparently did not locate the clot, but which was followed by a good result.

The osteoplastic operation has been done fifteen times (Cushing 9, Seitz 1, Meara and Taylor 1, Murphy and Torbert 1, Strachauer 1, Bailey 1,

contraction of the inlet. The child cried immediately after birth, and was said to be a very strong baby by the midwife. He nursed and appeared well until the third day, when he began to vomit and to refuse nourishment. On the sixth day, July 17, the baby entered hospital as a feeding case.

Examination showed a markedly desiccated infant weighing 2740 gms. The pupils were equal, the eyes and head were turned to the right. The anterior fontanelle was tense and bulging. There was a left facial paralysis, with no motion of the mouth on crying, and inability to close the eyelids. The arms and legs were spastic. Temperature, 98.6°; pulse, 80. That afternoon he had a general convulsion lasting about ten minutes, with cyanosis and rhythmic respiration. On July 18 the pulse was 130, respirations were regular, and the color was good. Attempts to feed with a dropper being unsuccessful, gavage was used. Slight twitching of the left arm was observed twice. A subcutaneous injection of whole blood was given. July 19, spinal puncture gave 2 cc. of straw-colored fluid. Most of the food given by the tube was regurgitated. July 20, the child was somnolent. Aspiration of the left lateral ventricle through the left



Fig. 1. Lateral view of head at nine months, to show brachycephaly

Towne and Faber 1), with eight recoveries. Two other cases of Strachauer's and one of Hubbard's cannot be classified, because of lack of detail.

(4) *Measures Designed to Increase the Coagulability of the Blood.*—Rodda² showed that delayed coagulation and bleeding times can be reduced to normal by repeated subcutaneous injection of whole blood, and he felt that this reduction was essential prior to surgical intervention. In two cases successfully operated on by Strachauer, Rodda thought that the blood injections added to the chances of surgical success. Foote¹⁵ had six recoveries in seven cases; treated by spinal puncture and injection of horse serum or thromboplastin.

Case Report.—Male, born July 11, 1920, at full term. The confinement was attended by a Japanese midwife. The mother was in labor ten hours, and delivered herself without assistance. At a later date pelvic measurements, for which we are indebted to Dr. A. V. Pettit, showed moderate lateral



Fig. 2. Appearance at nine months. Note that the finger movements are not restricted

angle of the fontanelle gave 2 cc. of slightly reddish fluid. Supraorbital pressure did not make him cry, but caused him to move the right face, arm and leg. A diagnosis of hemorrhage over the right cerebral hemisphere was made.

July 21. Operation. The child was wrapped in cotton and lightly etherized. The right parietal bone was turned down in an osteoplastic flap. The dura was tense, immobile and deep blue in color. A flap of dura was reflected and a clot, 1.5 cm. thick, was removed from the cortex with wet cotton swabs and irrigation. The clot extended to the falx, over the frontal and occipital poles and over the temporo-sphenoidal lobe, thinning as midline became more distant. It was partially removed from under the bones with spoon and irrigation. Near the midline and toward the anterior end of the bone opening a large bleeding pial vein was ligated. After removal of the clot the brain still bulged markedly through the opening in the dura. The dural flap could not be brought back into place, and an attempt to swing it up by a plastic incision did not prove successful. The head was lifted off the table with skin clips placed about

the outer margin of the scalp incision. This manoeuvre allowed the brain to drop back into the collapsible cranium so that the dura could be sutured in place. The pericranium and scalp were closed without drainage. Twenty-five cc. of whole blood were given subcutaneously. Following operation the baby began to take his feedings better, and the weight increased to 3200 gms. on July 29. Blood was given subcutaneously on July 22 and 30. The palsy of the left face cleared up rapidly. The conjugate deviation of the eyes, spasm of right neck muscles and rigidity of left arm and leg disappeared gradually, until on July 29 a clenched left hand was the only evidence of right cortical irritation. The spasticity of the right leg and arm showed no diminution. It was thought that a smaller subdural clot lay over the upper portion of the left cerebral hemisphere.

Second operation, July 30. The left parietal bone was turned down, showing a normally colored dura. A small incision at the upper aspect of the defect allowed normal cerebro-spinal fluid to escape. There was no hemorrhage. Closure. In four days after the second operation the right-sided spasm disappeared entirely. He took his feedings well, and after a drop to 3000 gms. he gained weight steadily, going to 3400 gms. on August 19 when he was discharged from the hospital. He seemed of normal intelligence, taking the bottle well and noticing lights and motions. There was a tendency to keep the fingers clenched in the palms of both hands, but at times they were relaxed; and as the left cortex was known to be normal this was thought to be of no significance. In October, 1920, when three months old, he weighed 5050 gms. He no longer showed clenching of the fingers. In February, 1921, at seven months, he weighed 6125 gms. The head was high, wide, and short in the antero-posterior diameter. The biparietal diameter was 12 cm.; the suboccipito-bregmatic 12.5 cm. He did not sit up, or hold the head up well. He recognized his parents, and responded to lights and moving objects, but did not turn promptly to loud sounds. It was felt that he was normal mentally, as far as could be told at that age, but perhaps slightly retarded in muscular control. In April, 1921, at nine months, the child was well nourished and active. (Figs. 1 and 2.) The brachycephaly was quite marked. He played with toys, reacted quickly to moving objects and sounds, sat up alone, and made sounds but no words. No motor or sensory abnormality could be made out. There had been no convulsions.

Discussion of Case.—In this instance there was no difficulty in making the diagnosis of a clot over the right hemisphere, for the symptoms were unusually clear-cut; tense fontanelle, deviation of the head and eyes to the right, palsy of the left face and spasticity of the left limbs, old blood in the cerebro-spinal fluid, and general convulsions. The pathology underlying these signs was accurately forecast, and the only surprising fact was the great size of the clot. The identification of a ruptured pial vein near the longitudinal sinus as the probable source of the bleeding, though noted in Cushing's case 4 at autopsy, has not been previously reported as an operative finding. A matter of considerable technical interest came up in the first operation. Because of bulging of the cortex it was impossible to suture the dural flap in place. Cushing noted this difficulty, but he attributed it to edema of the brain, and advised counteracting it by lumbar puncture. In our case it did not appear possible that lumbar puncture could reduce the tension sufficiently to allow closure. But cerebral edema could have played only a minor role, for the event proved that the cerebral extrusion was largely of mechanical origin. The cranium after closure of the suture lines is a solid box, but in the newborn infant it will collapse if a window is cut through the dura mater. When the baby's head was gently lifted from the table

by the edges of the scalp incision the brain dropped back enough to allow closure of the dural incision. It seems probable that this simple manoeuvre will, in other cases, solve the one technical difficulty of the operation. A scalp tourniquet is, of course, inadvisable in these cases.

The second operation did no apparent harm, but it was quite unnecessary. The diagnosis of a clot over the left hemisphere was made on the fact that, though the spasticity of the left leg and arm disappeared rapidly after the first operation, the right leg remained just as rigid as it had been on admission, and the right arm showed only slight improvement. Four days after negative exploration of the left cortex the spastic condition of the right limbs had disappeared. The exploration could not account for this change. A possible explanation may be that on the day before the first operation the lateral ventricle was tapped through the left angle of the great fontanelle. It is conceivable that some slight edema or hemorrhage from this puncture may have temporarily involved the motor cortex for the right arm and leg. Had we been familiar with subdural puncture or inspection of the fontanelle after incision of the scalp, the possibility of a left cortical hemorrhage could have been ruled out. Inspection rather than puncture would seem to be the method of choice, for there must be a definite risk of damage to the motor cortex from a negative puncture.

The condition of the child at nine months was encouraging. Nothing abnormal could be found except a tendency to brachycephaly. Unfortunately, he was taken to Japan and will not come under observation again, so that the final physical and mental result will not be known.

SUMMARY

Rational treatment of intracranial hemorrhage of the newborn must be based on a correct diagnosis of the cause and site of the bleeding. In addition to the clinical symptoms, spinal puncture, inspection of the fontanelle after scalp incision or the less desirable subdural puncture through the fontanelle, ventricular puncture, and determination of the coagulability of the blood are valuable aids in diagnosis. Infratentorial bleeding is best treated by spinal puncture, for a hemorrhage of any size is rapidly fatal, and puncture appears to be sufficient in small hemorrhages. Supratentorial hemorrhage should be treated by osteoplastic resection of the parietal bone and evacuation of the clot. Aspiration or drainage of such hemorrhages does not insure against future trouble from adhesions and cyst formation, and should be used, if at all, only as a preliminary step to the Cushing operation. Spinal puncture and aspiration of the ventricle are indicated in the intraventricular hemorrhages. In all cases, but especially when hemorrhagic disease is diagnosed, subcutaneous, intramuscular or intravenous injection of whole blood, controlled by coagulability tests, should be given. The intracranial clot of the diathetic cases calls for the same surgical treatment as does the clot of traumatic origin. In the case reported a clot over a cerebral hemisphere was diagnosed and removed, but misleading clinical symptoms and failure to inspect or puncture the other side of the fontanelle led to a needless exploration of the opposite hemisphere. Except for brachycephaly, the child appeared normal at nine months. The only technical difficulty of the osteoplastic operation is closure of the dural flap. In our case this was demonstrated to be due to collapse of the skull,

and was easily remedied by lifting the head by the scalp edges, thus allowing the brain to drop back into place. A scalp tourniquet should not be used, for its pressure would increase cerebral herniation through the dural opening.

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OVARIAN AUTOTRANSPLANTATION *

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My experience in ovarian transplantation has been limited entirely to autotransplants and the results in ten cases will be given. The two circumstances under which these operations were performed were:

First: Three cases of hysterectomy with double salpingo-oophorectomy and transplantation of parts of one or both ovaries into the abdominal wall. In all cases the grafts took and in all cases there has been periodic enlargement and varying degrees of tenderness in the grafts. All cases have had ablation symptoms since operation, but these symptoms have been markedly lessened during the period that the grafts showed activity. These findings are contrary to those of Tuffier, who states that while the grafts increase in size monthly for two or three years after hysterectomy, it is without any benefit to the patient.

Second: Six cases of double salpingo-oophorectomy without hysterectomy and with autografts from either one or both ovaries into the abdominal wall, and one case of double salpingo-oophorectomy without hysterectomy with autotransplants into wall of uterus. The justification for leaving the uterus and transplanting the ovaries is: the suppression of pain which follows retained ovaries with damaged blood supply and extensive denudation of the surface of the ovary, permitting adhesions and cystic degeneration and, most important of all, the preservation of menstruation, because that function is absolutely necessary along with ovulation to ensure the patient freedom from the distressing trophic, congestive and nervous symptoms which follow suppression of menstruation.

Surgical Technique: The technique of autografting is simple indeed and adds no extra risk to the operation. In all cases the ovaries were completely removed and the uterine end of the tube resected by a V-shaped incision into the cornua of the uterus. The ovaries were then wrapped in gauze and placed in a vessel containing normal salt solution at about 100° F. The operation and peritoneal toilet were then completed and in some cases a pocket was made, by blunt dissection, between the peritoneum and the under surface of the rectus muscle, on either one or both sides of the incision, according to the number of grafts to be used. The ovaries were then carefully inspected and areas of cystic degeneration were culled out. The remaining ovary, when possible, was cut into disks 2x2x½ cm. and from one to three of these disks were transplanted into the already prepared pockets. No sutures were used to hold the grafts in place. On removing the grafts from the saline solution, one is at first apt to be rather startled at the pale, lusterless and shriveled appearance of the grafts, but this apparently does not interfere in any way with the success of the grafts. The abdominal wall was closed in the usual manner.

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

In other cases the grafts were inserted into a bed prepared on top of the anterior sheath of the rectus muscle, and in the subcutaneous fat, three or four cm. to either side of the incision.

I have never used grafts of the whole ovary and believe that better results will be obtained from multiple or seedling grafts, because a much larger surface is obtained which insures a better blood supply.

In one case the grafts were embedded into the cornua of the uterus after removal of the tubes. No matter where the grafts are embedded, the results seem equally good, provided the graft is aseptic, the field has an adequate blood supply, and the site chosen permits the graft to enlarge periodically without compression and consequent pain. I believe that the suggestion of Whitehouse, that the ovarian tissue be left in contact with the body fluids within the peritoneal cavity until required for grafting, to be a good one and in future I will place the grafts in the pouch of Douglas while completing the pelvic work and removing them just prior to closing the abdomen.

Average age was 30½ years, youngest 20 years and the oldest 41 years.

Summary of Cases: Immediate results of operation were uniformly good. Patients who had been grafted show no symptoms or complications different from other patients subject to pelvic operation.

Ultimate Results: As the time elapsed since the first operation is only 18 months, results for the first year and a half only can be given.

First—Cases with hysterectomy. All showed ablation symptoms varying from slight to moderately severe. All cases showed activity of grafts as indicated by periodic enlargement and tenderness of the grafts and amelioration of the ablation symptoms at this time. In none of the cases in which hysterectomy was done have the patients been entirely free from the symptoms of artificial menopause. Ablation symptoms appeared at the following times after operation: Three weeks, six weeks and four weeks, respectively.

The symptoms of menopause can be classified as slight in two cases and moderately severe in one case. In none of the cases are the symptoms constant and all show a tempering of these symptoms by the presence of the ovarian grafts.

Second—Cases without hysterectomy. 1. Time after operation of appearance of menstruation:

Case 1. Menstruation 4½ months, scanty at first, now moderate and regular, no pain.

Case 3. Menstruation 6 months, regular, 1½-day flow.

Case 4. Menstruation at 9 weeks after operation, scanty at first, now regular, 7 days, no dysmenorrhoea.

Case 5. Unable to trace patient.

Case 7. Menstruation at 5 weeks after operation, scanty at first, now heavy and regular, no dysmenorrhoea. On March 7, 1921, patient had her regular normal five-day flow. On March 23, 1921, she began to flow moderately again, but without pain. This continued for 10 days, when she was sent to San Francisco Hospital and curetted by Dr. Gibbons. Pelvic examination negative except for slightly enlarged uterus. Microscopic examination of curettings showed normal menstruating endometrium. Wassermann taken

at time of first operation was doubtful, but is XXX at present, which probably accounts for the metrorrhagia.

Case 8. Menstruation at 3 months after operation, scanty, one day, no pain.

Case 10. Menstruation at 5 months. Scanty at first, now moderate flow, no pain.

2. Effect on ablation symptoms: Case 1. Severe until menstruation. Now only occasionally and very slight. Case 4. Slight flushing and nervousness until menstruation. Now only occasionally and slight. Thinks she is not more nervous than before operation. Case 7. No symptoms of artificial menopause. Case 8. Moderate flushing and nervousness until menstruation. Now only very slight symptoms, which are getting milder all the time. Case 10. Moderate symptoms for four months after operation. Now free for as long as two months at a time. Symptoms only occasional and slight.

CONCLUSIONS

1. Autografting of ovaries is a perfectly safe and rational procedure and is indicated, except in cases of malignancy or ovaries grossly infected in all patients requiring removal of the ovaries, with or without hysterectomy.

2. Ovaries requiring removal are: (a) Badly traumatized ovaries with much raw surface on capsule; (b) ovaries showing considerable cystic degeneration; (c) ovaries having a impaired blood supply.

3. Cystic degeneration of ovaries is no barrier to autotransplantation and ovaries removed in conditions of pyosalpinx can be transplanted, provided the ovaries themselves are not grossly infected.

4. Autotransplantations certainly lessens and delays ablation symptoms following castration and in some cases affords complete freedom from symptoms of artificial menopause. Autotransplantation lets patient down easy.

5. That the autografts functionate is shown by periodic increase in size and tenderness of grafts with amelioration of ablation symptoms, and when the uterus remains, by menstruation.

6. When the ovaries are found suitable for transplantation, when possible the uterus should be allowed to remain, myomectomy done in fibroids, and as the body of the uterus adjacent to the tubes and the cervix are the two areas of persistent infection in inflammatory disease, the fundus should be resected and the cervix treated by deep cauterization or a Sturmdorf tracheloplasty, or amputated when this condition is present.

7. It is an established fact that a small portion of an ovary successfully engrafted anywhere furnishes to the subject of the graft the secretion or influence which preserves her sexuality, and prevents atrophy of the genital organs and other changes in the individual that are coincident with complete castration.

8. After ovarian transplantation certain cases show marked increase in sexual stimulation.

9. Reasonably healthy and undamaged ovaries should be left in situ with or without the uterus and autotransplantations should be used to carry on the physiological functions of the ovary only in those cases where, for reasons given above, both ovaries must be removed.

In studying the literature in regard to ovarian transplantations, one is impressed with the amount of experimental work which has been done along these lines, both in this country and in Europe. Although the findings of many of these investigators have been widely divergent, they all agree that the autotransplant is the method most promising of success, and that homografts and heterografts are successful in a much less degree. Also, the results after ovarian transplantation are de-

cidedly more brilliant in animal experimentation than when done in the human subject. Franklin Martin of Chicago in 1915 gave an excellent summary of the work done by various investigators in ovarian transplantation.

To quote the conclusions of various experimentors—Benthin thinks that the effects of ovarian transplantation are good, but that the experimental results are more successful than the therapeutic. Transplantations of small bits of ovary, while it gives good results, does not guarantee their permanency. Homotransplantation should be undertaken only in very young individuals, and in homotransplantations it is very important that the organs should be transplanted immediately after removal from the donor.

Stocker reports two cases in which he did an autotransplantation of part of an ovary. In one patient, age 28, a pan hysterectomy was done for a gonorrhoeal condition with extensive adhesions. One of the ovaries was cut out of the excised mass and sliced into disks only two or three mm. thick. An implanted disk of this kind grows into place very rapidly, as blood vessels soon grow through it. The bed into which it is implanted must be rich in blood vessels and must protect the graft from injury from without. Stocker implanted the graft in a fold of peritoneum and wound healed by primary union. An epinephrin test was made on the fifth day and there was no specific response as there is when the inhibiting influence of the ovaries is entirely withdrawn. The patient never had any symptoms of artificial menopause and was restored to health after five years of semi-invalidism. Three years later an intestinal tumor necessitated a laparotomy. The disk of ovarian tissue was found to be about the size as when implanted and very vascular. In his second case the tube and ovary had been removed on one side for ruptured tubal pregnancy and two years later on the other side for the same condition. At the second operation a disk of ovary was transplanted into a fold in the peritoneum and menstruation continued regularly and patient's condition was excellent.

Norton agrees with Tuffier that cystic degeneration of the ovary is no bar to transplantation and he has grafted ovaries that were almost entirely cystic, cutting out the medium sized and larger cysts and implanting the residue. Some of these ovaries seemed hopelessly diseased and had been causing much pain over a long period of time. In these cases the patients were free from pain and menstruated regularly. He considers the operation one of the most satisfactory advances in modern surgery and recommends it in diseases of the ovaries. It should always be done instead of double oophorectomy in idiots, defectives and criminals. Except for the fact that it does not allow pregnancy, it fulfills all the requirements of an ideal operation. It can be easily and quickly done. The functions of the ovary, both as to internal secretion and menstruation, are maintained and at the same time the ovary is placed in a clean, healthy bed completely protected from subsequent attacks of gonorrhoeal infection. With a new and diminished blood

supply sclerosis and cystic degeneration are prevented or retarded. A small portion of the ovary retained within the abdomen seems to retain the power of the organ as a whole.

Lydston gives a summary of his previous work on sex gland implantation. He believes that the sex gland hormone is the most powerful cell stimulant, nutrient, and regenerator known to medical science and that sex gland transplantation preserves hormone production for a long time. He believes that certain physiologic and therapeutic advantages are permanent. In his cases the implanted tissue has never disappeared in less than twelve to eighteen months. Microscopic sections of the implanted gland show regeneration of circulation and the interstitial connective tissue which probably produces the so-called internal secretion.

Blair Bell found that if ovaries be excised and transplanted into the muscle of the uterus or abdominal wall, atrophy of the genital ducts will not occur. He found that the follicles first become cystic and then degenerate; that is to say, they ripen; but if completely buried cannot expell the contents and therefore become cystic and retrogress. He also noted that in the rabbit, if only the central portion of the ovary, which contains no follicles, be implanted, the interstitial cells of which the graft is composed, can maintain the integrity of the uterus alone. It is possible that ovarian transplantation in general and of the interstitial cells in particular, are capable of keeping normal the uterus, mammae and other endocrine organs and the general metabolism, in the female. He concludes that it is not the ovaries alone which influence the female characteristics and genital functions, except in regard to the production of ova. The ovaries are only a part of the system to which most, if not all, of the other endocrine organs belong and in which these other organs figure with as great importance as the ovaries themselves.

In twenty-three cases of hysterectomy with autotransplantation of ovaries into the abdominal wall, done by Graves, he found that the ablation symptoms were almost identical with those in completely constricted women. He has had better results in treating ablation symptoms with ovarian extract and his results were better with extract of the whole ovary than when corpus luteum was used alone. He thinks that there is certainly an ovarian secretion that is not produced in the corpus luteum, for profound effects are produced by removal of the ovaries before puberty when there are no corpus lutea. He does not know whether this early secretion originates in the follicles or the highly differentiated connective tissue of the ovarian stroma. The cause of vaso-motor disturbances following removal of the ovaries, Graves thinks to be due to the influence of some other organ of internal secretion, which has been rendered abnormally active by the loss of the balancing power exerted by the ovarian secretion. It is conceivable that the thyroid is made overactive by the removal of the ovaries and that the ablation symptoms are manifestations of hyperthyroidism.

Tuffier affirms that symptoms of artificial meno-

pause are due almost exclusively to the suppression of the menstrual function. Modern research has demonstrated the close connection and reciprocal action of the various glands with an internal secretion and their reciprocal changes when one functionally drops out. Therefore, special efforts should be made to preserve the balance between the various ductless glands. He transplants the ovaries into the subperitoneal tissue no matter how sclerocystic the ovaries are, provided they are aseptic.

He found that from three to five months later the grafts showed phenomena of congestion and about one week later menstruation began. In the interval between menstruation the grafts were scarcely palpable. In a report of 19 of 44 cases all but one menstruated in from three to seven months. During the period of latency all had symptoms of menopause which cleared up with restoration of menstruation. In autografts when the uterus was removed there was monthly ovulation, but the symptoms of menopause persisted. He conserves the uterus wherever possible when autografting ovaries, or does a partial hysterectomy, leaving enough of the body of the uterus to carry on the menstrual function. He regards these conservative measures especially indicated in cases of excessive thyroid function or when the symptoms of menopause are liable to be unusually severe and protracted with hyperthyroidism. Tuffier, in a paper presented at the London meeting of the Clinical Congress of Surgeons of North America in 1915, again insists that the beneficial effects of ovarian transplantation are due to the resulting menstruation and that ovulation without menstruation (as when uterus is removed) is without value.

He states: "My purpose in addressing you on this subject is to lay before you my experience in grafting of ovaries in the hope that menstruation might be preserved after operations for salpingitis and fibroids of the uterus."

CASE REPORTS

(1) Mrs. G. Age 33. **Operation:** September 3, 1919. Dilatation and curetage, deep cauterization of cervix, bilateral salpingo-oophorectomy. Autografts left ovary into pockets between peritoneum and under surface rectus muscle on either side of incision. **Pathology:** Intraligamentous cyst right ovary size of small orange. Left ovary size of walnut and cystic. Both tubes closed, adherent and hydrosalpinx present.

Examination: September 29, 1920. Grafts not palpable. Patient has noticed slight tenderness of wound before menstrual periods. Patient had quite severe ablation symptoms until menstruation appeared January 12, 1920, when she had a profuse flow for one day. Since that time she has had only occasional flushing and at times she is free for as long as one month. Flows regularly every month from two to three days and has no dysmenorrhoea. In May flowed only one day and about that time flushing and nervousness were more severe than at any time since operation. That was the only time since menstruation began that ablation symptoms have been at all severe or that menstruation was diminished.

Vaginal Examination: Uterus normal size and position, freely movable, no tenderness, no pelvic masses. Patient states that since her operation sexual desire has been considerably increased and has remained so for more than one year.

(2) Mrs. C. B. Age 27. **Operation:** October 19, 1919. Hysterectomy, supravaginal, bilateral salpingo-oophorectomy, separation of extensive intestinal and omental adhesions. Autotransplantation of ovarian grafts. **Pathology:** Both tubes buried in adhesions from previous pelvic peritonitis. Right tube closed, thickened, convoluted and adherent to right ovary and posterior surface of broad ligament. Left tube adherent to sigmoid and posterior surface of uterus, omental adhesions to uterus and adnexa. Ovaries enlarged, cystic and chronically inflamed.

Bilateral transplantation of ovarian grafts in pocket made between posterior surface of rectus muscle and peritoneum. Wound healed, primary union.

April 2, 1920. Ovarian grafts definitely palpable. Patient has thin abdominal wall. Patient states grafts vary in size, at times become enlarged and tender, remaining so for several months. During this time she feels much more energetic and has only slight flushing and some nervousness. Two months previously grafts were hardly palpable and patient had quite severe flushing, was extremely nervous and easily tired.

September 28, 1920. Grafts about same size as when examined last. Patient states that grafts enlarge and become tender at irregular intervals, during which time she feels better and is much less nervous. She now looks forward to those intervals of remission from flushing and nervousness and can tell when they are coming by the condition of the grafts.

(3) Miss C. J. Age 35. **Operation:** December 17, 1919. Partial hysterectomy, leaving lower third body of uterus. Bilateral salpingo-oophorectomy, ovarian transplants from left ovary in abdominal wall. **Pathology:** Multiple submucous and intramural fibroids of upper half of uterus. Small dermoid cyst right ovary. Cystic degeneration of left ovary. Three sections from left ovary transplanted into abdominal subcutaneous tissue. Two pieces on right, one of left side.

Examination: April 20, 1920. Grafts feel larger than at any time since operation, slightly tender. For last two months patient has had flushes and dizzy spells. Have been less since grafts have enlarged. Feels as though she were going to menstruate.

June 20, 1920. Menstruated for one day. Moderate flow, very few flushes for past two months. Feels fine. Much less nervous. Grafts enlarged in May and again one week before flow commenced.

July, 1920. No menstruation but felt as though she would. Feels fine.

September 18, 1920. Flowed 1½ days. No pain. No flushes or nervous symptoms.

(4) Mrs. N. B. Age 38. **Operation:** January 15, 1920. Excision cyst left Bartholin's gland. Double salpingo-oophorectomy. Resection fundus uterus. Freeing of adhesions, appendectomy, autotransplant of ovary into abdominal wall. **Pathology:** Bilateral tubo-ovarian masses and fundus adherent to omentum and sigmoid. Ovaries enlarged, cystic degeneration marked. Tubes distended, fimbriated ends sealed, hydrosalpinx. Left tube and ovary densely adherent in cul-de-sac. Much raw surface on fundus due to adhesions. Resection below attachment of round ligament. Reimplantation of round ligament.

Autotransplant size end of index finger from right ovary. Transplant into pocket between peritoneum and under surface left rectus muscle.

January 28, 1920. Wound healed primary union. **Examination** October 12, 1920: First menstruation nine weeks after operation. Scanty flow, no pain. Three days' duration. About two weeks before menstruation began she had moderate hot flushes and some dizziness which disappeared at onset of period. Has had regular monthly periods since operation with the exception of the August period, which was missed entirely. During this

time the ablation symptoms were somewhat more severe than at any time since operation.

As a rule she menstruates seven days, scanty first two days, moderate the other five days. No pain. Abdominal wall slightly sensitive during menstruation. At present has only occasional flushing and very slight. Thinks that she is not more nervous than before operation.

Vaginal Examination: Shows small uterus, somewhat adherent, not painful. No masses or tenderness in right and left pelvic regions. Graft in abdominal wall not palpable. Patient also stated that while in hospital she was troubled with nightly amorous dreams and she is now more passionate than she has been for years.

(5) Mrs. D. C. Age 20. Admitted S. F. H. August 7, 1919. Diagnosis: Bilateral salpingitis, chronic. Cervicitis, chronic. Discharged improved. Re-admitted October 8, 1919. Diagnosis: Bilateral salpingitis, chronic. Urethritis, acute. Erosion of cervix. Re-admitted December 5, 1919. Diagnosis: Salpingo-oophoritis bilateral, subacute. Endocervicitis. Erosion of cervix. **Operation:** January 20, 1920. Curetage, cauterization of cervix, double salpingo-oophorectomy, appendectomy, ovarian transplant into left cornua of uterus. Transplant from left ovary, 2x1x½ cm. **Pathology:** Both tubes and ovaries surrounded by light adhesions and bound down to posterior surface of broad ligament and sigmoid. Both tubes thickened, friable and fimbriated ends sealed. Ovaries enlarged, moderately cystic, size of large walnuts and after being freed showed large areas of raw surface, and it was considered advisable to remove them to prevent adhesions and further cystic degeneration. Uterus normal size and position, body firm, very few raw areas, which were closed. Decided to leave uterus and section of left ovary 2 cm. by 1 cm. transplanted in left cornua of uterus.

Unable to trace patient, so cannot give results.

(6) Mrs. G. L. Age 20. **Operation:** March 20, 1920. Deep cauterization of cervix. Double salpingo-oophorectomy. Supra-vaginal hysterectomy. Freeing of adhesions, autotransplants. **Pathology:** Dense adhesions of omentum and sigmoid to double tubo-ovarian masses and fundus and posterior surface of uterus. Both tubes and ovaries adherent to posterior surface of uterus. Double pyosalpinx. Ovaries size of large walnuts, cystic and seat of inflammatory disease. Uterus larger and softer than normal. Uterus too badly involved by adhesions and metritis to leave. One section 2x1 cm. taken from each ovary and transplanted into subcutaneous fat on either side of incision.

April 1, 1920. Wound healed, primary union.

June 15. Severe flushes since three weeks after operation. Says she is more nervous. Grafts palpable but smaller than at operation.

August 10, 1920. Grafts larger than previously, moderately tender, began enlarging about one week ago. No flushes or nervousness for past ten days. Feels fine.

October 2, 1920. Grafts seem to enlarge and become tender about once a month. During this time the patient feels much better than during the intervals when grafts are small. Has much less flushing and nervousness but is never entirely quite free from these symptoms.

(7) Mrs. E. S. Age 30. **Operation:** June 17, 1920. Curetage, anterior colporrhaphy, perineorrhaphy, double salpingo-oophorectomy, appendectomy, freeing of adhesions. Autotransplantsations both ovaries into abdominal wall. **Pathology:** Both ovaries and tubes adherent in cul-de-sac by firm adhesions. Lumen of tubes closed. Both ovaries equally cystic. Corpus luteum cysts. Appendix adherent to right tubo-ovarian mass. Uterus normal size and position, not adherent. Apparently healthy and not removed. Autotransplants from both ovaries 2x2x1 cm. One transplant on

either side of abdominal wound in subcutaneous tissue.

June 20, 1920. Slight separation at upper end and middle section of wound. No serum or purulent discharge. Closed with adhesive plaster.

July 6, 1920. Wound closed. Grafts palpable. No tenderness.

October 1, 1920. No flushing, palpitation or nervous phenomena since operation. First menstruation July 26, scanty, lasted for four days, used one pad a day. Grafts not tender. Second menstruation, August 18, menstruated for five days, good flow. Stopped for one day, then menstruated slightly for two days, soreness in either side of wound.

September 19, 1920. Flowed five days, heavy flow, no discomfort. Noticed a peculiar feeling in region of grafts for three days after menstruation had stopped. Patient states that periods are now more regular and that she had less discomfort than at any time since she can remember. Previously periods were very irregular, amenorrhea varying from three to nine months. Patient volunteered that she had feared loss of sexual desire after the operation, but such has not been the case. Is now the same weight as when in the best of health.

Pelvic Examination: Uterus normal size and position, not tender, movable. Pelvis free, no tenderness. Grafts palpable, not tender.

(8) Mrs. J. T. Age 41. **Operation:** July 22, 1920. Dilatation, curetage, double salpingo-oophorectomy, appendectomy. **Pathology:** Both tubes enlarged, ends sealed, tubes distended with clear fluid. Left ovary size plum, marked cystic degeneration, densely adherent to posterior surface left broad ligament and pelvic wall. Right ovary adherent, normal size, cystic degeneration moderate. Uterus normal size and position, very few adhesions to uterus, hence not removed. Appendix retrocecal, adherent, removed.

Right ovary placed in normal saline solution, temperature 100°. Three sections of right ovary 2x½ cm. placed in pockets made in subcutaneous tissue 3 cm. to right and left of incision. Two transplants made on left side, one on right side.

August 2, 1920. Wound healed, primary union. Grafts palpable, not tender.

August 28, 1920. Grafts larger than previously, slightly tender. Has had few slight flushes, slightly more nervous. Is regular time for menstruation. Thinks that there is slight thin white discharge from vagina.

September 6, 1920. Grafts smaller than last week, not tender. Less nervous, no flushes. Feels fine, gained seven pounds in weight.

October 7, 1920. Grafts somewhat enlarged and sensitive about the end of the month. Patient notices a periodicity in the change in the grafts. States that they enlarged once a month and about the time that she used to menstruate before the operation. Four days after grafts enlarged this last time she had a slight flow for one day only. No pain or pelvic discomfort. One month previous to this time she felt as though she was going to menstruate but had only a thin, white vaginal discharge. States that the "hot spells," nervousness and slight dizziness that she noticed after the operation are much less.

(9) Mrs. C. B. L. Age 34. **Operation:** August 3, 1920. Dilatation and curetage. Supravaginal hysterectomy, bilateral salpingo-oophorectomy, appendectomy. **Pathology:** Uterus retroverted and bound down to rectum by dense adhesions to tubes and ovaries bound down by adhesions to cul-de-sac. Uterus larger and softer than normal. Bilateral pyosalpinx and cystic degeneration of ovaries. Ovaries badly lacerated during removal. Autotransplants of piece of each ovary 2x2x1 cm. into subcutaneous fat.

Convalescence normal. Wound healed, primary union.

October 9, 1920. Grafts palpable, not tender. Three weeks after operation had flushes of heat, not severe. Patient somewhat more nervous since operation. Has noticed no change in size of grafts. Flushes remain about same and do not inconvenience patient. Has been working hard and thinks some of nervousness due to that.

(10) Mrs. C. B. Age 27. **Operation:** August 18, 1920. Curetage, cauterization of cervix double salpingo-oophorectomy. Denudation of sigmoid repaired by omental grafts. Appendectomy. Subcutaneous ovarian transplants, two in left and one in right side of incision. **Pathology:** Sigmoid adherent to left tubo-ovarian mass size of an apple, peritoneal coat of sigmoid torn in several places during separation. Left tubo-ovarian abscess. Right pyosalpinx, right ovary adherent to tube and pelvic wall and appendix. Ovary badly traumatized and surface denuded. Fundus of uterus resected down to attachment of round ligaments. Right ovary removed because of damage

to blood supply and extensive denudation of surface. Such an ovary would have become painful, adherent and cystic. Three grafts 2x2x1 cm. transplanted into subcutaneous tissue.

October 12, 1920. Moderate ablation symptoms began five weeks after operation. No menstruation to date. Grafts palpable, no change in size, not tender.

March 26, 1921. Wound became sensitive in region of grafts about end of December. Again became sensitive in second week of January and five days later had slight flow for one day. Since January flows regularly for three days, moderate amount and has no pain. Moderate flushing was present for four months after operation. Now free for as long as two months at a time and is only occasional and slight.

Pelvic Examination: Uterus normal size, slightly pulled to left, not tender. Pelvis is negative, no palpable enlargement of grafts, but slight tenderness of wound.

OVARIAN AUTOTRANSPLANTATION WITHOUT HYSTERECTOMY

No.	First Menstruation Post Operation	Ablation Symptoms	Condition of Grafts
1.	4½ months after operation. Now regular. No pain.	Severe up to menstruation. Now decreased and mild.	Grafts not palpable, but slight tenderness of wound before and during menstruation. Uterus normal size and position, freely movable, no tenderness or pelvic masses. Increased sexual desire.
3.	6 months after operation. Now regular, no pain. 1½ days.	Moderate flushes for first 7 months. Now entirely free.	Grafts palpable. Slightly tender. Enlarge one week before menstruation.
4.	9 weeks. Scanty at first. Now regular. 7 days. No pain.	Moderate flushes and nervousness for 3 months. Now only occasional and slight.	Uterus small, somewhat adherent. No pelvic masses or tenderness. Sexually stronger than for years.
5.	Unable to trace patient.		
7.	5 weeks, scanty at first. Now regular, 5 days' heavy flow, no pain.	No ablation symptoms since operation.	Grafts not palpable. Has peculiar feeling in region of grafts during menstruation. Uterus normal size and position, movable, no masses or tenderness.
8.	3 months scanty, 1 day. No pain.	Moderate symptoms after operation. Less now.	Monthly enlargement and tenderness of grafts.
10.	5 months, scanty at first. Now 3 days, moderate flow. No Pain.	Moderate symptoms for 4 months after operation. Now free for as long as 2 months at a time. Symptoms only occasional and slight.	Uterus normal size, slightly pulled to left. Not tender, pelvis negative. No palpable enlargement, but slight tenderness of wound.

OVARIAN AUTOTRANSPLANTATION WITH HYSTERECTOMY

No.	Ablation Symptoms	Enlargement and Tenderness of Grafts
2.	Began 6 weeks after operation. When grafts are small she has severe flushing and nervousness. When grafts are enlarged she has slight symptoms and is much more energetic and feels fine.	Grafts palpable. Enlarge at irregular intervals. Grafts slightly tender.
6.	Moderate flushing and nervousness began 3 weeks after operation. Ablation symptoms very much tempered by enlargement of grafts, but never entirely free.	Enlargement and tenderness of grafts monthly.
9.	Flushing began between 3 and 4 weeks after operation. Now only slight and do not inconvenience patient.	Grafts palpable, but do not change in size.

(1201 Flood Building)

CHRONIC TUBERCULOSIS IN EARLY INFANCY*

By RACHEL L. ASH, M. D., San Francisco, Cal.

Tuberculosis occurs at all ages and under all social conditions. Its unsuspected frequency in adult life became known with the publication of the post-mortem statistics of Naegeli¹ in 1900 and Burkhardt² in 1906. More recently the tuberculin reaction, the X-ray and careful clinical study have made available the statistics of childhood and more especially those of infancy. Tuberculosis of infancy generally runs a rapid course to a fatal termination and the younger the infant the shorter the duration of the disease.

Sometime ago a tuberculous infant came under observation at the University of California Hospital whose disease ran so chronic a course that the correct diagnosis was not made until a few months before death. As this case presents valuable material for study it will first be reported briefly and then its most important aspects will be discussed in relation to the tuberculosis of early infancy.

C. N. (U. C. H. No. 17062) aet 6 months, was brought to the hospital April 9, 1918, for difficulty in breathing. Here she remained until her death, November 16, 1919, at the age of two years and one month. The mother, who died of pulmonary tuberculosis when the infant was four months old, had nursed her for the first six weeks of her life; then the child was removed from the home environment. At six months her gain over her birth weight was four pounds only. A questionable history of syphilis was obtained from the father, who, on examination, however, showed no signs nor stigmata of lues; his Wassermann was negative.

The most distressing feature of this pale, poorly nourished, irritable little baby was dyspnoea; the expiration was accompanied by a sharp, apparently painful, little cry or cough. The markedly emphysematous chest displayed an unusual prominence of the upper sternum. Movement was slight at the bases, especially at the right. The skin was mottled with a fine papular rash over the scalp, neck and back. A general glandular adenopathy was present, the glands being aggregated into small masses in the cervical and inguinal regions. Percussion of the chest elicited sub-manubrial dullness, interscapular dullness, and slight dullness over the lower right lung posteriorly. Large snoring and small bubbling and crepitant rales were heard generally over the pulmonary area. D'Espine was positive to D₆. The heart and the abdomen showed nothing unusual. The temperature ranged from 36.5° to 39°, the respirations occasionally reached 55°. The skin and intra-dermal tuberculin tests and the Wassermann reactions were negative. Repeated blood counts and examinations of the urine developed nothing of importance. The diagnosis of enlarged thymus, enlarged root glands and tuberculosis of the lungs was borne out by the X-ray findings. The respiratory difficulty was thought at this time to be due to hypertrophy of the thy-

mus. No definite opinion was given as to the character of the rash.

For some months the child's general condition remained the same apparently; the pulmonary process developed very slowly but gradually reached the other lung. Transitory attacks of pneumonia seemed not to hasten the course of the disease. When the child had been in the hospital six months a painful swelling appeared about the left elbow joint. From this time on the involvement of the osseous system became the dominant feature. There followed in succession the disease of the right radius, the right, the left tibia, metatarsals, some of the metacarpals, both ankle joints, an otitis media, the nasal bones and finally the right mastoid.

The radiological diagnosis was persistently syphilis of each long bone as it was submitted, while the diagnosis of the lung plates oscillated between syphilis and tuberculosis. The Wassermann and tuberculin tests remained negative, and anti-luetic treatment was without result.

Eventually one of the ankle joints became fluctuant; it was curetted and the pathologic and the bacteriologic reports were tuberculosis. The Von Pirquet became positive when the child was two years old, and about the time that it became necessary to operate for a staphylococcus aureus mastoid infection, secondary to the long-standing otitis media. A low-grade staphylococcus septicemia followed and the patient died suddenly one month after the operation.

AUTOPSY DIAGNOSIS (DR. G. Y. RUSK)

Chronic pulmonary tuberculosis with cavity formation in left upper and right middle and lower lobes, with a diffuse distribution of conglomerate tubercles throughout the remainder of the lung. Bilateral chronic adhesive pleurisy. Bilateral cervical adenitis. Acute and chronic tuberculous ulcers of ileum. Caseous mediastinal and mesenteric lymph nodes. Isolated conglomerate tubercle of the left kidney. Tuberculous osteomyelitis of right tibia and fibula. Tuberculosis of the tarsal bones of right foot with sinus formation. Tuberculous necrosis of lower end of humerus and upper end of radius and ulna with involvement of the joint. Marked emaciation.

A more detailed description of the lungs and bones follows.

Left Lung—The pleural surface is covered with fibrinous adhesive tags. On palpation the upper lobe feels perfectly solid and nodular solid areas can be felt in the lower lobe. On section there are found several cavities in the upper lobe. The largest one measures 2 cm. in diameter. These cavities are surrounded by thick indurated white walls. The lower lobe contains multiple conglomerate tubercles, some of which are caseous. The intervening lung tissue shows marked hypostatic congestion. Some areas are very suggestive of broncho-pneumonia.

Right Lung—The pleural surface is covered with fibrous tags of adhesions. Solid and nodular masses can be palpated in the upper lobe. On section the upper lobe shows several conglomerate tubercles; the intervening lung tissue is rather

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

emphysematous. The middle lobe contains a cavity 1.5 cm. in diameter, the wall of this cavity is ragged and is surrounded by a *wide zone of fibrosis*. The lower lobe contains several cavities, the largest one measures 2 cm. in diameter. These cavities with *their nodular fibrous walls* occupy practically the entire lower lobe.

Upper Extremities—The left elbow is fixed in a position of semi-flexion exposing the joint. The lower end of the humerus is necrotic and caseous; the upper end of the radius and ulna also shows necrosis of the bone. The joint is involved with fibrous ankylosis and tuberculous granulation tissue covers the articular surface. The soft tissues around the joints are indurated and edematous. There is no sinus formation.

Lower Extremities—The entire tibia and fibula of the right side were removed. The periosteal surface of the tibia is slightly roughened. On section the marrow of the tibia is firm and caseous in appearance. The lower end of the marrow canal in this region is surrounded by a very thin shell of bone. The bony shaft is rather thin throughout the extent of the tibia but there are no points of necrosis.

The fibula is somewhat distorted in shape and surface is irregular. The marrow at a point about the center of the bone appears caseous. Over the dorsum of the foot 4 cm. below ankle joint there is an opening surrounded by indurated granulation tissue.

On exposing the tarsal bones they appear soft and osteoporotic but no definite necrosis can be made out.

The brain was removed. There was a moderate increase in the amount of cerebrospinal fluid. The brain was apparently normal.

SOURCE OF INFECTION

Tuberculosis of the earliest weeks of life is either congenital or acquired. By congenital tuberculosis is meant a direct transference of tubercle bacilli from the mother to the child in utero, either by the circulating blood—the placental route, or by the aspiration or deglutition of tuberculous amniotic fluid. Von Reuss³ collected 26 indisputable cases of congenital tuberculosis from the literature; the children were either born prematurely or lived a few weeks, and the primary foci of infection were found in the lymph nodes about the portal vein, the liver and spleen. Acquired tuberculosis is a post-natal invasion through the usual external portals of entry; the duration of life is usually longer. The case above was undoubtedly acquired tuberculosis, as shown by early signs within the chest, the chronicity of the infection and the history of direct contact with maternal pulmonary tuberculosis.

THE COURSE OF THE INFECTION

If we accept the pathological and clinical evidence that the lungs presented the oldest lesions, the course of the infection can be satisfactorily followed. Very early in life, tuberculous material, aspirated by the infant, lodged in some alveolus—the primary lung focus (Ghon's⁴ *primäre Lungenherd*). There may have been several such early foci during the six weeks of maternal contact.

Soon the regional and later the peri-bronchial and peri-tracheal glands became involved. When the child came under observation, the glandular hyperplasia had already become massive in a valiant but futile attempt to localize the process. Many areas of consolidation were already present, especially in the right lung, the sequel of a ruptured caseous gland or of a new infection from an extraneous source. The disease of the bones was of a much later date, due probably to haematogenous invasion from distant foci. Still later gastro-intestinal lesions appeared. The pulmonary disease can not be classified with the usual tuberculosis of these organs in infancy. The postmortem report reads: "The wall of the cavity is surrounded by a wide wall of fibrosis. These cavities are surrounded by thick indurated white walls." Pulmonary tuberculosis at this period of life runs its course quickly. In all of Ghon's 27 cases with cavity formation in the first two years of life, an early dissemination of miliary tubercles occurred. Delicate attempts at healing were observed in only three cases. Geipel⁵ thus describes the cavities of early infancy: "An encapsulating tissue reaction does not develop in the periphery, at least not noticeably. A caseous pneumonic zone surrounds the cavities which later may coalesce." It would seem that this child had been so vaccinated "by a first infection by way of the lungs" (Opie⁶) or had become so allergic (Von Pirquet⁷) that a second infection assumed a chronic character.

CLINICAL OBSERVATIONS

Only the clinically important features will here be discussed. The expiratory dyspnoea and stridor and the accompanying cough were so remarkably pathognomonic that had it not been for the enlarged thymus an immediate diagnosis of compression due to tuberculous peri-tracheal and peri-bronchial glands would have been made. This respiratory difficulty disappeared toward the end of the first year. The skin condition was probably tuberculosis, but was not so diagnosed. It is said that only 17 per cent of all tuberculides are diagnosed correctly. Figures show that they occur in about 20 per cent of all cases of infantile tuberculosis. The lungs were always suggestive of tuberculosis, although no cavities could be demonstrated and the constancy of the percussory and auscultatory phenomena were puzzling. The greatest diversity of opinion ranged about the X-rays of the bones. From the radiographer's standpoint these were undoubtedly syphilis, as shown by location of the primary foci, the periosteal thickening, the bone proliferation accompanying bone destruction, and the absence of sinus formation. The presence of tuberculosis need not exclude lues; but here the postmortem reports did exclude it. Since this case was studied, three other cases of bone tuberculosis with a radiographic diagnosis of syphilis have come under observation, in somewhat older children, however. Two died of meningitis tuberculosa, and the third, a patient of Dr. Langley Porter, developed skin tuberculides confirmed by pathologic section.

The tuberculin reaction was also unusual. Why it appeared late or why it appeared at all it is impossible to say. According to Dunn and Cohen,⁸

who studied 374 cases with 138 necropsies, the positive Von Pirquet has a great diagnostic value, "but the presence of a negative Von Pirquet in no way rules out the diagnosis in a child under two years of age."

DURATION AND PROGNOSIS

The duration of tuberculosis acquired during the first year of life is very short, but few infants reach the fifteenth month. Dunn⁸ and Fischberg,⁹ however, believe that if the condition remains primary—that is, with the Von Pirquet, the sign of D'Espine and the roentgenogram—any one or all of these as the only signs of tuberculosis—calcification and cicatrization may occur. As evidence they have autopsies of infants who have died of intercurrent diseases. Schlossmann¹⁰ holds that in tuberculosis of infancy there is no trend toward calcification. "Indeed there is not a positive instance where a tendency toward limitation of the disease was observed." Geipel⁵ believes that the mortality is 100 per cent. It would seem then, that the duration of the disease depends on the infant's native defense, the number of primary foci, and the virulence of the infecting organism. And as, in the first months of life there is rarely any attempt toward the latent inactive state of later life, the prognosis is bad.

The above case is reported because in the opinion of the many clinicians who observed its progress, it was an unusual example of the adult type of tuberculosis occurring in infancy.

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NOTICES

The University of California Medical School has received notification that Dr. C. v. Pirquet has been obliged to forego his western trip and that his lecture engagements are therefore cancelled.

Important—

CONVENTION PROGRAM
will be closed and go to
press the first week in
February.

NEPHRECTOMY IN HUNCHBACKS— WITH REPORT OF TWO CASES

By CHAS. D. LOCKWOOD, M. D., Pasadena

Surgeons who have preformed nephrectomy on the hunchbacked will, I am sure, testify to the extreme difficulty attending this operation in patients suffering with this deformity. It has been my duty to operate two such cases and the difficulties encountered in technique, as well as the unusually interesting features characterizing both cases, seemed sufficient justification for this paper.

Not only is the ordinary technique of lumbar nephrectomy quite impossible in these cases, but there are grave difficulties accompanying the abdominal route. In persons suffering with kyphosis the lower ribs overlap the crest of the ileum and the intercostal spaces are so narrowed that no room is left for adequate exposure of the kidney. The abdominal route, which presents the only feasible approach, is also greatly complicated by the deformity. The antero posterior diameter of the abdominal cavity is greatly deepened and there is a corresponding shortening of the longitudinal diameter. The kidney is carried well up into the concavity opposite the kyphosis and this renders it quite inaccessible.

The great shortening of the longitudinal diameter of the abdominal wall renders the ordinary rectus incision inadequate. If the incision is carried farther out, the overhanging ribs and the crest of the ileum so encroach upon the available space as to render such an incision useless. These difficulties are best met by a combined outer rectus incision and a transverse incision following the lower border of the ribs as far out as possible. The overhanging ribs are then lifted upward by broad powerful retractors. The retroperitoneum is now slit, the ureter ligated and the kidney dislocated toward the medium line. The renal vessels are next clamped and divided. Especial difficulty is encountered in ligating the vessels, inasmuch as this step in the operation, as well as the others, is done almost entirely by touch. If drainage is indicated it is best secured by means of a stab wound retroperitoneally between the ribs.

CASE REPORTS

Case I.—C. A. St. A. Age 52. Occupation, barber. Family history, good; both parents lived to be over seventy-five years of age. Habits good. No venereal infection. At age of thirty developed Pot's disease of the spine. He was treated by Dr. Gillette of St. Paul, and his spine lesion healed, leaving a marked kyphosis.

His chief complaint was frequent and painful urination. Once or twice he had noticed a little blood in his urine. He was conscious of his left side, especially if he caught cold. It was heavy and painful at times.

Examination: Anemic-looking, hunchbacked. Chest negative except for deformity. Abdomen negative. Per rectum, hard slightly movable insensitive prostate. Number fifteen Franch catheter passed without difficulty. Two ounces of cloudy urine withdrawn. Circulation fair. Blood pressure, 140. Cystoscopic examination: Two attempts were made to catheterize the ureters, but owing to great deformity and sensitiveness of the bladder, they were unsuccessful. A good view, however, was obtained of both ureteral orifices. The left orifice was oedematous and ulcerated; the right, normal except for slight relaxation and pouting. Left nephrectomy was determined upon. The

urine contained many tubercle bacilli. Operation: A left rectus incision was made, and this was joined by a transverse one along the lower border of the ribs. The kidney was small, densely adherent to its capsule and very inaccessible. Considerable difficulty was encountered in securing the pedicle, and bleeding was quite free. The patient left the table in good condition.

Post-operative course: Acute nephritis developed on the third or fourth day, with high temperature. The patient eliminated fifteen to thirty ounces of urine daily. The blood showed nitrogen retention. He was placed on a carefully measured diet, consisting entirely of carbohydrates. He gradually improved, wound healed and did not subsequently break down, although there was wound infection. Two months after operation, the patient suddenly died one night. No autopsy was allowed. The kidney when removed showed little gross trouble, but there were one or two suspicious areas. A glass slide drawn over these areas and stained, showed tubercle bacilli in abundance.

Case II.—Mr. G. P. Age 79. Retired manufacturer. First seen November 21, 1919. Family history negative. Habits good. Venereal history negative.

Present complaint: One month prior to my examination he had an attack of hematuria. This recurred and he was passing blood freely from the urethra. At times it was bright red, and at times mixed with urine. He arose several times at night to urinate. He suffered no pain. He was very nervous and much afraid of surgery.

Physical examination: Vigorous-looking old man of Danish descent. Chest, barrel-shaped as a result of marked kyphosis. This was congenital in origin, and not tubercular. Abdomen, retracted and shortened, with eleventh and twelfth ribs overlapping the ilium. Per rectum, large, soft, movable prostate.

Cystoscopic examination: November 24, 1919, patient was so frightened and nervous that a satisfactory examination was impossible. There was free hemorrhage, which seemed to come from an intravesical lobe of the prostate. The ureters could not be found, owing to their situation behind the greatly enlarged lateral lobes and the bloody field. There were two ounces of residual urine. The hemorrhage was thought to come from the prostate gland, and prostatectomy was advised. The bleeding stopped after a few days' bladder drainage with an inlying catheter. Patient refused operation, and returned home.

Hemorrhage soon recurred and two months later, January 23, 1920, a supra-public prostatectomy was performed. A moderately large prostate with large intravesical lobes was removed. The bladder seemed normal to palpation and inspection. Patient stood operation well, but suffered considerable post-operative shock, owing to his anemic condition. There was no hemorrhage following operation until the end of the sixth week. When the wound was closed and patient was about to leave the hospital, he began to pass bloody urine similar to that passed before his prostate was removed.

Cystoscopic examination revealed a villous growth near the right meatus, which was thought to be the source of hemorrhage and which had been overlooked at operation. The supra-public wound was reopened and villous tumor cauterized. All bleeding stopped. Wound healed, and patient again passed his urine normally and returned home. Within a few weeks, bleeding recurred and continued at intervals for six months. After three unsuccessful attempts by Dr. Ferrier, my associate, and myself to catheterize the ureters, Dr. Ferrier succeeded in securing a good view of both ureters. Clots of blood were protruding from the left ureter, the right spurted clear urine. Pthalein appeared on the right side in three minutes, and the thirty-minute percentage was 18 per cent. Four per cent dye was excreted from the left side.

Left pyelogram (described by Dr. Ferrier): 10 cc. of 20 per cent sodium bromide injected without spasm. Normal kidney position. Pelvis moderately enlarged with a smooth outline. Projecting into the pelvis from the renal parenchyma is a round, smooth filling defect, 2.5 in diameter. No distortion or retraction of the calyces.

A diagnosis of tumor projecting into the kidney pelvis was made, probably a papiloma. Filling defect due to blood clot was excluded because of the low comparative function, the fact that the shadow was continuous with the renal papillae and was not observed at the pelvic outlet, while the pelvis was definitely enlarged.

The patient had become almost exsanguinated and his hemoglobin ran down to 30 per cent. He was transfused six or seven times at short intervals with great improvement.

Finally on June 12, 1920, his left kidney was removed through a left rectus incision, by the technique described above. While closing the wound, he was again transfused. He made a prompt and complete recovery and is now in good health.

The tumor proved to be an adeno-carcinoma of the cortex of the kidney and a papilloma of the upper calyx which projected into the kidney pelvis.

ETIOLOGY OF GOUT

By W. F. McNUTT, SR., M. D., San Francisco

The etiology of few diseases has been more discussed than has gout. Very few writers have frankly admitted the fact that the cause is unknown. Sydenham said, "No very limited theory and no one particular hypothesis can be found applicable to explain the whole nature of gout." Trousseau wisely did not attempt, as most writers did and do, to define and explain the cause of gout. He said, "It is dominated by a specific cause, which we know only by its effects and which we term the gouty diathesis." Osler states that "Alcohol is the most potent factor in the disease (gout). There is probably defective oxidation of the foodstuff, combined with imperfect elimination of the waste products of the body." But frankly states, "The nature of gout is unknown."

Most writers who proceed to explain their particular theory of gout would, no doubt, subscribe to Shakespeare's wisdom when he makes Hamlet say, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." Only a few years ago, it might be called medical heresy to doubt that uric acid in the blood was not the cause of gout. I can well remember when Chalmers Watson apologetically hinted that uric acid might not be the sole cause of gout. He said, "It would, I think, be well if much less attention were centered on the excretion of uric acid alone, as the all-important factor of the disease"—gout. Uric acid in the blood has been abandoned as the cause of gout. It would, no doubt, be called medical heresy at present to doubt that a local foci of infection is the cause of gout. The foci of infection may be at the

Note.—Members of the medical profession undoubtedly will derive inspiration from this article by a member of our profession who has been in active practice for sixty years, and who is still actively interested in the welfare of the sick.—Editor.

root of a tooth, or in the tonsils, or any other place.

We do know that we have hereditary and so-called acquired gout. Acquired gout is the development of gout, by food, habits, etc., only when there is a gouty diathesis. We know that age, occupation, clothing, diet habits, etc., are potent factors that make for gout. Those of us who have practiced medicine for many years, know that many persons overeat, drink freely, live an irregular and dissolute life, often not a sound tooth in their mouth, and no gout because there was no gouty diathesis. My own experience and belief is, that it is not red or dark meat, or duck or turkey protein food, or strawberries, etc., or the quality, but the quantity of food, drink, etc., that makes for gout. Those who eat and drink sparingly, live a careful, well regulated life, may often avoid hereditary gout and will surely avoid acquired gout.

When the etiology of a disease is unknown, it behooves the physician to be wary in prescribing or proscribing certain articles of food. He must be guided by clinical experience. And here, again, the physician should be particularly on his guard who depends upon clinical experience. The influence of the mind on the body, especially the sick body, is such that the physician is often honestly deceived in ascribable cures to his remedies, and draws erroneous conclusions as to the cause of the disease. For instance, before we knew anything of the etiology of phthisis, how many theories of its etiology and cures were advocated and believed. It would be appalling, if we could only know the number of stomachs that have been injured by bicarbonate of soda and the prolonged use of alkaline mineral water to neutralize the uric acid in the blood of gouty people. Some physicians learn by years of experience that to be conservatively progressive is wisdom.

An old Scotch physician listened very attentively to a young physician's enthusiastic account of a discovery of a new remedy with which he had cured three patients, thought to be incurable. The young physician was very anxious for his senior to adopt the new remedy. The old physician said, "I'll jest bide-a-wee tie you cure more patients." The etiology of gout will be discovered some time. It may be that the time will come when gout will only remain as a memory—as a disease that was and is not. Who knows?

Gout would seem to be a disease of many relations, judging from the term in use. We speak of rheumatic gout, gouty arthritis, gouty phlebitis, gouty crisis, gouty nephritis, gouty bronchitis, gouty asthma, etc. May I not say, while the etiology of gout is unknown, it behooves us to rely on empirical remedies, established by clinical experience, combined with the treatment of the patient. Is there any relation of gout to pernicious anemia? Has every case of pernicious anemia a gouty diathesis?

GENERAL SESSION AND SECTION OFFICERS FOR THE 1922 MEETING OF THE STATE SOCIETY

The list of the officers of the general sessions and the various sections of the State Society is published below, so that members desiring to contribute papers may have the names and addresses of the proper officers of the section in which they are interested. Members desiring to present papers should communicate without delay with the chairman and secretary of the appropriate section, because the program is getting well under way and will be closed and go to press the first week in February.

The Secretary of the State Society, as chairman of the General Program Committee, invites correspondence and suggestions regarding any phase of the 1922 program.

GENERAL SESSIONS

Chairman, Dr. John H. Graves, President of the Society, 977 Valencia Street, San Francisco.
Secretary, Dr. W. E. Musgrave, Chairman of the Program Committee, 912 Butler Building, San Francisco.

SECTION ON TECHNICAL SPECIALTIES

Chairman, Dr. Ray Lyman Wilbur, President Stanford University.
Secretary, Dr. Charles T. Sturgeon, Merritt Building, Los Angeles.

SECTION ON MEDICAL ECONOMICS, EDUCATION AND PUBLIC HEALTH (League for the Conservation of Public Health)

Chairman, Dr. Dudley Smith (President League for the Conservation of Public Health), Thomson Building, Oakland.
Secretary, Dr. W. T. McArthur (Secretary League for the Conservation of Public Health), Security Building, Los Angeles.

SECTION ON INDUSTRIAL MEDICINE AND SURGERY

Chairman, Dr. E. W. Cleary, 177 Post Street, San Francisco.
Secretary, Dr. Packard Thurber, 906 Black Building, Los Angeles.

SECTION ON RADIOLOGY

(Roentgenology and Radium Therapy)

Chairman, Dr. Albert Sollard, 527 West Seventh Street, Los Angeles.
Secretary, Dr. H. E. Ruggles, Butler Building, San Francisco.

SECTION ON PATHOLOGY AND BACTERIOLOGY

Chairman, Dr. William Ophuls, Stanford University Medical School, San Francisco.
Secretary, Dr. Roy W. Hammack, Brockman Building, Los Angeles.

SECTION ON GENERAL MEDICINE

Chairman, Dr. Joseph M. King, Brockman Building, Los Angeles.
Secretary, Dr. E. S. Kilgore, 391 Sutter Street, San Francisco.

SECTION ON PEDIATRICS

Chairman, Dr. William Palmer Lucas, University Hospital, San Francisco.
Secretary, Dr. Hugh K. Berkley, Brockman Building, Los Angeles.

SECTION ON NEUROPSYCHIATRY

Chairman, Dr. Walter F. Schaller, 909 Hyde Street, San Francisco.
Secretary, Dr. W. B. Kern, Brockman Building, Los Angeles.

SECTION ON GENERAL SURGERY

Chairman, Dr. Charles D. Lockwood, 295 Markham Place, Pasadena.
Secretary, Dr. Edmund Butler, Butler Building, San Francisco.

SECTION ON EYE, EAR, NOSE AND THROAT

Chairman, Dr. Frank A. Burton, Watts Building, San Diego.
Secretary, Dr. Harvard McNaught, Butler Building, San Francisco.

SECTION ON UROLOGY

Chairman, Dr. George W. Hartman, 999 Sutter Street, San Francisco.
Secretary, Dr. Louis Clive Jacobs, 462 Flood Building, San Francisco.

SECTION ON ORTHOPEDIC SURGERY

Chairman, Dr. W. W. Richardson, Brockman Building, Los Angeles.
Secretary, Dr. G. J. McChesney, Flood Building, San Francisco.

SECTION ON ANESTHESIOLOGY

Chairman, Dr. Mary E. Botsford, 807 Francisco Street, San Francisco.
Secretary, Dr. Eleanor Seymour, 308 Consolidated Realty Building, Los Angeles.

SECTION ON GYNECOLOGY AND OBSTETRICS

Chairman, Dr. Harry M. Voorhees, Brockman Building, Los Angeles.
Secretary, Dr. L. A. Emge, Stanford University Hospital, San Francisco.

Pharmacy and Chemistry

Edited by FELIX LENGFELD, Ph. D.

Help the propaganda for reform by prescribing official preparations. The committees of the U. S. P. and N. F. are chosen from the very best therapeutists, pharmacologists, pharmacognosists and pharmacists. The formulae are carefully worked out and the products tested in scientifically equipped laboratories under the very best conditions. Is it not plausible to assume that these preparations are, at least, as good as those evolved with far inferior facilities by the mercenary nostrum maker who claims all the law will allow?

Patent Medicines in England.—We continually hear from hyphenated and semi-hyphenated Americans how much better things are done abroad than in this country. It is refreshing, therefore, to learn that some things are not so well done. England seems to be at least fifteen years behind us in the matter of regulating patent medicines. Apparently any nostrum may be foisted upon the unsuspecting public and any claim made, no matter how preposterous or dangerous.

Pil Mixed Treatment (Chichester), sold in the form of pills containing 1/20 grain mercuric iodid and 5 grains potassium iodid, has been extensively advertised as a standard routine treatment for syphilis, but has been refused admission to the N. N. R. because an examination made in 1907 showed that the claims were unwarranted, exaggerated and misleading.

"If heeded by those who read the advertising it will result in much harm to the public and the profession. For this reason the present report of the Council is published as a protest against any advertising propaganda advocating the routine treatment of a disease which requires that each case be studied carefully so that prompt and efficient measures may be applied to the various manifestations of the disease." (Jour. A. M. A., Oct. 22, 1921, p. 1355.)

The paragraph quoted should be put into permanent form and a copy sent to every physician, for it applies not alone to this preparation but to many others on the market. Every patient certainly has a right to ask that the physician consider his case by itself and prescribe for his case and his case alone, by using such remedies and such quantities as seem indicated and only using a proprietary preparation when it just happens to fit the individual case.

Endocrinology and Pseudo-Endocrinology.—R. G. Hoskins, Professor of Physiology, Ohio State University College of Medicine, pleads for a greater degree of discrimination on the part of physicians in evaluating not only proper data, but also the various agencies either seeking support in or exploiting this field. The latter aspect of the situation deserves special emphasis. Those who purpose acting as purveyors to the medical profession must accept the status of purveyors. The physicians or laboratory investigator of the medical sciences shall not exploit for commercial gain the result of his studies. At the present time a commercial campaign is being carried on by a "laboratory" purporting to specialize in endocrine products. The mail of physicians is flooded with a series of postcards, each card recommending and suggesting the use of the proprietary product of this self-styled laboratory for conditions ranging from eczema to epilepsy, and from obesity to tuberculosis. This free postcard advice is reinforced by reference to "monographs" and a trade journal in which scientific medicine is systematically belittled as unpractical. This advertising campaign is ostensibly under the supervision of the enterprising Mr. Hyde, the merchant of the firm. Mr. Hyde is a profound admirer of the eminent Dr. Jekyll, the medical director. (Jour. A. M. A., Nov. 5, 1921, p. 1499.)

STATE SOCIETY

Ladies who accompany their husbands to the convention of the Medical Society of the State of California in Yosemite National Park next May 15-18, will find many things of interest to occupy their time while the delegates are busy with the scientific program.

Yosemite Valley, where the convention will be held, is the center of life in Yosemite National Park, and the sunny verandas of Sentinel Hotel and Yosemite Lodge are ideal for rest and quiet recreation. Every evening there is an entertainment of high merit at Yosemite Lodge, followed by a dance.

Those who love horseback riding can obtain good horses for use on the beautiful trails of the valley. The finest trail is that which winds between the great boulders and trees of the east end of the valley, emerging at Mirror Lake. In the west end of the valley, the trail generally follows the tortuous course of the Merced River.

Guides can be obtained for numerous scenic one-day trips by horseback outside the valley. Most famous of all these is the trip to Glacier Point by way of Vernal and Nevada Falls, a distance of eleven miles, return being made over the four-mile trail by way of Union Point. Another trip of intense interest takes riders up the opposite or north wall of the valley to Yosemite Point at the brink of Yosemite Falls. This affords magnificent views of the entire 2565 feet of Yosemite Falls. Eagle Peak, tallest of the cliffs known as "Three Brothers," can be visited on the same trip.

Few thrills can equal the ascent of Half Dome, which usually can be made about the time the convention will meet, dependent on how rapidly the snow has melted at the 9,000 foot elevation. A ride of nine miles leads to the foot of the "Elephant Back," the great hump to the left of Half Dome as viewed from Yosemite Valley. It is a short walk over this to the foot of the Dome, which looms up more formidably than the dome of the Capitol in Washington. A little way up, however, and all nervousness vanishes. Steel cables on either side afford reassuring grips. Those who want added security can wear leather belts with clasps which fit the cables, to be found in a box at the beginning of the ascent. As steps are provided on the steepest slope, and the "plates" of the granite are cracked at intervals, thereby affording secure resting places, most persons think the belts unessential and only imposing burdensome weight. Rubber sole shoes and gloves should be worn on the climb.

At the top of Half Dome is one of the grandest views in the world. The most notable feature of the picture, perhaps, is the intimate glimpse into Tenaya Canyon, the granite walls of which are so steep and smooth that less than a dozen men ever have achieved its passage.

Persons unaccustomed to horses need feel no fear at mounting one of the Yosemite animals, for they are trained and gentle. However, there are motor trips of great beauty for those who prefer to travel by automobile. The finest of these is the trip to the Mariposa Grove of Big Trees, oldest and largest of all living things, California's most distinctive possessions, for they can be seen nowhere else in the world outside this State. The trip from Yosemite Valley is one of great interest, as the road goes by way of Artist and Inspiration Points, makes a circuit of the entire Mariposa Grove, including the famous tunnel tree Wawona and the American Legion Tree dedicated to the Unknown Dead in the World War, and allows ample time to see everything.

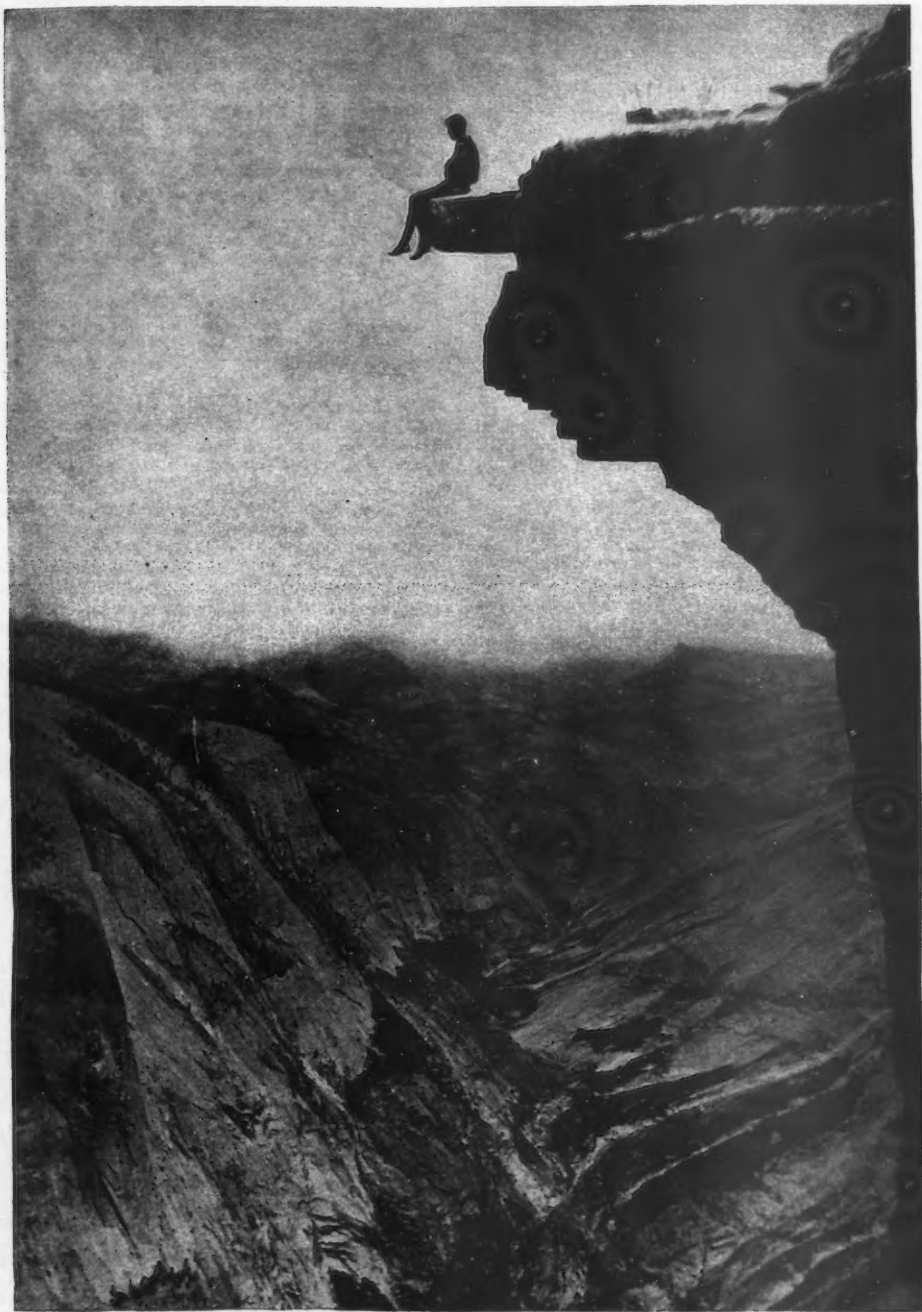
Another fine motor trip is the tour of Yosemite Valley, following the road which traverses the valley on both sides of the Merced River, affording close views of the cliffs and waterfalls.

Those who drive to the valley in their own automobiles should not fail to take the splendid fifteen-mile ride between Yosemite and El Portal, terminus of the railroad. The road is like a boulevard, and follows the turbulent Merced River up its narrow canyon, through the "Gates of the Valley"—one of the most scenic rides in America.

It is interesting to note that the paved, all-year highway now being constructed between Mariposa and El Portal will follow this route into the park.

For those who like to hike there are walks innumerable, long or short, concerning which information will be given gladly at Yosemite Lodge, Sentinel Hotel or National Park Service headquarters. There is plenty to do in Yosemite—something to suit every taste!

One more thing—bring your camera. Few places can provide such wonderful opportunities for pictures.



GLACIER POINT, YOSEMITE VALLEY

COUNTY SOCIETIES

Alameda County Medical Association (as reported by Dr. Pauline S. Nusbaumer, secretary)—The Society met November 21, 1921, in the Oakland Health Center with sixty members present. Dr. J. Craig Neil in his paper, "Disturbances and Treatment of Defects of the Vaginal Outlet," stated that the pelvic fascia is the true supporting structure of the pelvic viscera. Any disturbance of this fascia may result in various degrees of prolapse. Cystocele is really a hernia and usually causes the most troublesome symptoms. It may exist with or without a prolapse of the uterus, and should be dealt with independently.

During the child-bearing period, the fascia should be overlapped as in the treatment of hernia in other parts of the body, and the uterus suspended through an abdominal incision. After the child-bearing period, the best results are obtained by a vaginal pan-hysterectomy with a suspension of the vaginal vault by suturing the broad ligaments and the utero-sacral ligaments together, and an overlapping of the fascia of the anterior vaginal wall to support the bladder.

That the fascia about the rectum is not so well defined, but is available and should be utilized in the radical repair of rectocele.

Dr. J. F. McMath in his paper on "Dental Diagnosis," stated that the dentist is best qualified to render a diagnosis of dental diseases of the oral cavity. But that it is not within the scope of the dentist to advise for or against the removal of teeth when they are only suspected of being the foci of an infection, in such cases the dentist and physician should consult before advice is given.

He also stated that interpretation by radiologist should in no case be given to the patient, but should be considered as only an aid to the dentist.

The doctor believes that the physician should try to familiarize himself with the general problems of the dentist.

Dr. W. H. Strietmann in his paper, "Some Observations in Regard to the Achylia Associated With Pernicious Anemia," has never seen a case of pernicious anemia without achylia. Secondary anemias of any grade were usually accompanied by a diminished gastric function. The doctor reported one case, in which there was a typical picture of pernicious anemia, and which, after four years, has had no remission, and the blood count, on the day of the reading of this paper, was normal. A secondary case, in which the blood findings were those of a secondary anemia, during the course of eight months went into a pernicious type, ending fatally.

A number of other cases of varying degrees were reported, in all of which the treatment of the achylia was the only measure employed—all of which showed marked improvement.

These papers provoked full and interesting discussions.

Dr. William H. Irwin of the Oakland Emergency Hospital staff and Miss Lucile Pallady were married December 4.

The Baby Hospital of Oakland has just completed its campaign for help, and have received \$20,000 for the support of its charitable work for babies.

M. J. Holt was convicted in the court of Superior Judge George Samuels for practicing chiropractics without a license. According to news-

paper accounts, Holt has been engaged in his business in San Leandro and had taken over the work of J. E. Shah-Za-De, a "Persian chiropractor," who is now in the Alameda County jail. Holt was sentenced to fifty days in jail, declining to pay the \$100 fine, which would have obtained his release. According to the newspapers, Holt was paroled by the Alameda County Parole Board, consisting of District Attorney Decoto, Sheriff Frank Barnett and Chief of Police J. T. Drew of Oakland.

According to the Oakland Tribune, Alfred Bach, proprietor of a newly opened rest-cure sanatorium, was arrested for violation of the State Medical Act, section 17, making it a high misdemeanor to practice medicine or advertise as a doctor without a license from the State. Permission for Bach to operate his sanatorium was granted by the Alameda County Council after a heated argument.

Sarah I. Shuey

On November 22, 1921, the Alameda County Medical Association was called upon to mourn the loss of one of its honored members in the death of Dr. Sarah I. Shuey.

Dr. Shuey was, perhaps, the most widely known woman both medically and philanthropically in the East Bay cities. She graduated with the first class in medicine in the University of California in 1876.

Dr. Shuey was the only woman to have held the presidency of the Alameda County Medical Association, and was also president of a former Board of Health of the city of Oakland.

When the campaigns for certified milk and a probation officer were launched in this city, Dr. Shuey was among their staunch supporters, giving substantial financial aid to the latter.

At the time of her death she was a member of the California State Medical Society, the A. M. A., the Merritt Hospital staff, and attending physician for girls in the Alameda County Detention Home.

In recognition of Dr. Sarah I. Shuey's splendid work in medicine, a movement is well under way to establish a scholarship for women in medicine at the University of California by public subscription, and will have the support of Dr. Shuey's many friends.

Placer County (as reported by Dr. R. A. Peers, secretary)—The annual meeting of the Placer County Medical Society was held in Auburn, Saturday evening, December 3, in the Masonic Temple. Dr. E. E. Ostrom, President of the society, presided.

The following officers were elected for the ensuing year:

President, Dr. C. J. Durand, Colfax; vice-president, Dr. H. N. Miner, Blue Canyon; secretary-treasurer, Dr. R. A. Peers, Colfax.

In addition, in conformity with the suggestion of the officers of the State society, Dr. E. E. Ostrom of Loomis, was elected as assistant secretary. Dr. E. E. Ostrom was elected as delegate to the 1922 State meeting at Yosemite. Dr. F. E. McCullough of Lincoln, was elected as alternate.

The literary program of the evening consisted of an address on Cardiac Irregularities, by Dr. Leroy H. Briggs, Assistant Clinical Professor of University of California Medical School, and a paper on Equilibrium in Vertigo, by Dr. Frederick C. Lewitt, Instructor in Surgery, at the University of California Medical School. The subjects presented were admirably handled, and evoked much interest and discussion.

Sacramento Society for Medical Improvement (as reported by Dr. Geo. Joyce Hall, secretary)—At the regular monthly meeting for November Dr. E. C. Turner discussed "Uterine Displacements and Causes." He gave a classification of displacements, including retroflexion and prolapse; description of uterine ligaments; causes of displacements and demonstrated by use of the lantern, the seven displacements, depending upon the ligaments involved. He then took up flexions, lateral displacements and inversions. Dr. C. B. Jones discussed the paper.

"The Indications for Operation in Uterine Displacements" was the subject of Dr. G. N. Drysdale's paper. He divided the displacements into five classes and outlined the indications for operating these patients. Dr. Drysdale's paper was discussed by Drs. Rulison, Lindsay, Pitts and Hall.

Dr. J. W. James presented a paper upon the "Result of Operations in Uterine Displacements," which was discussed by Drs. Pitts, Thomas, C. A. Foster, Drysdale, Yates, Turner.

Dr. W. W. Cress, Sacramento, Dr. Smith, McMullin, Folsom, Dr. Christian, Galt, Dr. Stoltz, Sacramento, were elected members of the society.

The applications of Drs. Clattenburg and Azevedo were read for the usual course.

A committee of three was appointed by the Chair to take up the question of properly considering and wording a change in the present constitution so that the secretary be elected from the floor.

San Diego County Medical Society (reported by Dr. Robert Pollock)—The papers read before the San Diego County Medical Society at recent meetings comprise the following:

October 25—"Observations on One Thousand Cases of Fractures," with outline of modern treatment of the various types of fractures, by M. C. Harding, M.D.; "The Legislative Situation as it Concerns the Medical Profession and the Public Health of California," by Walter V. Brem, M.D., of Los Angeles.

November 8—"Fractures of the Skull," by E. H. Crabtree, M.D.; "The Clinical Value of Basal Metabolism," by R. J. Pickard, M.D.; "Secondary Radical Mastoid Operation," with report and presentation of cases, by C. W. Brown, M.D.; "Renal Diabetes," with report of case, by S. A. Durr, M.D.

November 22—"Indications for Cesarean Section," by T. F. Wier, M.D.; "Mastoiditis," by F. A. Burton, M.D.; "Myelogenous Leukemia," case report by M. M. Doria, M.D.

Sister Mary Michael, Mother Superior of St. Joseph's Hospital, recently celebrated her golden jubilee, representing fifty years of faithful service as a nun. The physicians of the staff recognized the occasion by presenting a substantial memorial to the hospital, and at a dinner tendered by the sisterhood to the staff, Dr. T. O. Burger, on behalf of the latter, delivered an address of appreciation of the faithful services and self-sacrificing devotion to the sick on the part of Mother Mary Michael and the members of the sisterhood to which she belongs.

The position of laboratory technician at the county hospital has been filled by the appointment of Mr. Maxwell, and Dr. Moser has been appointed to the position of house physician; he began his services November 1. He is a graduate of Rush Medical College.

The annual election of both the medical society and medical library association are conducted on the same day, December 13, polls being open all day.

San Francisco County Medical Society (as reported by Dr. LeRoy H. Briggs, secretary)—The society held four regular meetings and one special meeting during the month of November.

The special meeting was to hear an address by Dr. Wm. R. P. Emerson of Boston, on "Nutrition of School Children." The various programs show that an unusual group of papers was presented, but abstracts on only one of these papers has been presented to the editor.

Dr. S. L. Haas discussed the subject of "Fractures in Transplanted Bone," at the meeting of November 15. Dr. Haas stated that in studying the healing of fractures in transplanted bone, one must take into consideration two processes; namely, the healing of a fracture and the fate of bone after transplantation. Each one of these processes consist of an intricate system of regenerative changes, and when there is a demand for both to functionate at the same time, the question naturally arises as to whether there will be sufficient energy for the repair of a fracture in a transplanted bone, in addition to that required for the regeneration of the transplant itself.

In order to determine this question, an entire metacarpal or metatarsal bone was removed from a dog's foot, fractured in the center, and then reimplanted in the normal position or transplanted to the muscles of the back.

In seventeen observations there were only three complete failures of union, or lack of evidence of proliferation at the end of the fragments. Firm union occurred in five of the reimplanted bones and in five of the bones transplanted to muscle. The period of observation extended from 33 to 116 days.

Conclusions—1. Transplanted bone possesses sufficient inherent reparative powers to form a union of a fracture in a transplant, without the aid of any extraneous osseous elements. This is especially emphasized in the case of union of fractured bones imbedded in muscle.

2. A fracture will unite in a bone in which there has been a complete destruction of its blood supply. From this fact it would appear that disturbances in blood supply to one fragment of a fractured bone cannot be considered as a definite cause for non-union.

Sonoma County Medical Association (as reported by Dr. N. Juell, secretary)—The society met on December 8, with twelve members and one visitor present and twenty-five members absent.

Dr. Karl L. Schaupp read a paper on "Obstetrics," and led a discussion of the subject during the evening.

As this was the annual meeting of the society, the following officers were elected: President, Lafayette J. Wilson, Sebastopol; vice-president, Henry S. Rogers, Petaluma; secretary, N. Juell, Santa Rosa; treasurer, R. M. Bonar, Santa Rosa; censors, J. W. Cline, F. O. Pryor and J. Temple, Santa Rosa; delegate, W. C. Shipley, Cloverdale; alternate delegate, J. H. Shaw, Santa Rosa.

The Sonoma County newspapers are very properly agitating the need of a hospital for Santa Rosa. One paper states that, as a matter of fact, a hospital is as much a community affair as a church, a school or a courthouse. It ought always to belong to the community and be controlled by it. True, it is a workshop for the medical profession, but so is a school for teachers, a courthouse for lawyers and churches for preachers. It is strictly a public institution, a people's affair,

operated for the people's benefit, and should never be made a place for personal aggrandizement by any part of the medical or surgical profession.

Southern California Medical Association (as reported by Dr. Michael Creamer)—The sixty-fifth regular semi-annual meeting of the Southern California Medical Association was held in Los Angeles, Friday and Saturday, November 4th and 5th. Members were in attendance from all of the counties in the southern portion of the State.

Friday morning was devoted to clinics at the various hospitals, Saturday morning and the afternoon sessions being devoted to a scientific program given by our local men and members. Many excellent and unusual papers were given, followed by interesting discussion.

Dr. Alonzo Englebert Taylor, Director Food Research Institute, Stanford University, spoke on "The Practitioner's Conception of the Dietetics." Dr. Herbert McLean Evans, Professor of Anatomy, University of California, Berkeley, and Charles A. Kofoed, Professor of Zoology of the same University, gave the Saturday evening program. Dr. Evans' subject was "Interrelation between Menstruation and Ovulation." Dr. Kofoed spoke on "Protozoan Infections of the Human Digestive Tract." The evening sessions were much enjoyed by the members of the profession and such of the laity as were interested in these subjects. A vote of thanks was given by the society to these men for the excellence of their presentation.

The following officers were elected for the ensuing year:

Dr. William Duffield, Los Angeles, president; Dr. Robert Pollock, San Diego, first vice-president; Dr. Herbert A. Johnston, Anaheim, second vice-president; Dr. Egerton Crispin, Los Angeles, secretary-treasurer.

The spring meeting will be held in San Diego, April, 1922.

A joint meeting of the society with the Western branch of the National Urological Society and Urological Section, was held on November 17, at Normal Hill Center. The following program was given:

Vesical Neck Obstructions and Their Relief. Wilbur Parker, M. D.

A Modification of the Differential Functional Test with Phenolsulphonephthalein. Anders Peterson, M. D.

Some Experiences in the Pathology and Treatment of Impotence and the Sexual Neuroses in the Male. H. A. Rosenkranz, M. D.

Intermittent Albumen, Its Etiology and Treatment. Lantern Slides. Alexander H. Peacock, M. D.

Merced County Medical Society (as reported by Dr. Brett Davis, secretary)—The December meeting was held on the 8th with Drs. Fountain, Davis, Lilley, Mudd, Parker and Kohl present. Much of the time of the evening was taken up in a discussion of the fee schedule. Dr. C. W. Kohl presented a paper on "Lobelia, Its Characteristics and Uses in Medicine."

This being the annual meeting there was an election of officers, and the present officers were re-elected to serve during 1922.

During the fall there have been twelve cases of diphtheria with seven known carriers, and six cases of scarlet fever.

Criminal Abortion

Recent inquiries of and correspondence with the office of the State Secretary appear to indicate the advisability of reviewing briefly the situation regarding criminal abortion. Penal Code, Section 275, reads as follows:

"Every woman who solicits of any person any medicine, drug, or substance whatever and takes the same, or who submits to any operation, or to the use of any means whatever, with intent thereby to procure a miscarriage, unless the same is necessary to preserve her life, is punishable by imprisonment in the state prison not less than one nor more than five years."

It is inspiring to read the Hippocratic oath which has been morally binding upon every physician of the world for more than 2000 years. The Principles of Medical Ethics, under which every ethical physician operates, also is quite specific and definite as to the proper attitude of the individual physician or organizations of physicians on this important question.

Honest boards of managers of hospitals, with the full support and co-operation of physicians' organizations, as well as hospital organizations, are safeguarding honesty and making these criminal procedures more and more difficult in an ever increasing number of hospitals.

Recently the State Board of Medical Examiners issued a statement on this subject that ought to be interesting and instructive to physicians. It is as follows:

"The commission of an abortion is a felony, and under the criminal statutes, all felonies are directly under the investigation and prosecution of local district attorneys.

The Medical Practice Act provides that the license of the individual may be revoked for the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion. The legal technicalities involved in the determination of what constitutes 'proper evidence' under the criminal code makes it a most difficult problem for the Board of Medical Examiners to handle.

It is necessary to make the following showing:

1. A woman to testify that the alleged abortion was either attempted or committed on her.
2. It must be proven by substantiated evidence that said woman was pregnant at the time she visited the alleged abortionist.
3. It must be proven by corroboration of a third party that the alleged abortionist actually performed the abortion.
4. If a dying statement is taken of the individual alleged to be dying as a result of a criminal abortion, the code requires that a statement must be taken by a representative of the district attorney's office; the statement must open with the expression on the part of the testatrix that she is about to die or that she knows she is going to die, for without such a statement the courts will not admit in evidence a dying statement.
5. The penal code further provides that the individual who approaches another soliciting that an abortion be performed, is compounding a felony; i. e., is equally guilty with the individual who is alleged to have committed the abortion."

CORRESPONDENCE

We are in receipt of the following letter and article from Dr. Philip King Brown, President of the California Tuberculosis Association:

Editor of the State Journal of Medicine, Butler Building, San Francisco.

Dear Doctor:

The enclosed circular, if published in our Journal, will enable doctors to handle some of the worthy cases of tuberculosis among school teachers who might not otherwise be able to afford sanatorium care. I would appreciate it very much if the Journal would publish this notice.

Very truly yours,

PHILIP KING BROWN.

Fresno, Calif., November 10, 1921.

Dear Teacher:

Some years ago the late Mr. Bancroft E. Beeman of Los Angeles left a bequest to the California Tuberculosis Association, the fund to be used for whatever need seemed greatest to the Executive Committee. The fund has not been touched for the reason that we wished to use it where it would do the greatest good.

For some years past there has come to the Association's notice from time to time, teachers who were suffering with pulmonary tuberculosis. In some instances the inquiry has come for advice and information, but in many other instances it has been an appeal for help. Realizing the very poor remuneration paid to teachers, coupled with the fact that frequently they have obligations to meet that makes it impossible for them to stop work when their chances for recovery are good, many of them have been obliged to teach until they have become advanced cases. For this reason the Executive Committee has decided to use the Beeman bequest for a building for teachers at the Barlow Sanatorium in Los Angeles. Dr. Barlow is one of the foremost tuberculosis specialists in the United States, and it is for this reason that his institution was chosen. The above picture is a facsimile of the building. There will be private sleeping porches and dressing-rooms.

Until an endowment can be secured for the beds the building will be supported from the proceeds of the Christmas Seal sale. We hope that the teachers in the State who may need care will feel that this building is dedicated to them for their recovery from tuberculosis.

Very sincerely,

THE CALIFORNIA TUBERCULOSIS ASSOCIATION.

Taxing the Physician

"In ancient times a barbarous people presented a peculiar way of getting rid of their sins, by the priest laying hands on a goat, which was sent into the wilderness—the scapegoat. This didn't hurt the goat or do the people any good, except those who were Christian Scientist in embryo. Since that far-off time various peoples, institutions, societies and persons have been made scapegoats. At the present time there is one society specially under ban, though it has not taken to the woods.

The medical profession is the goat, but it cannot escape. There are men and women in this profession who violate laws and bring opprobrium upon all its members; there are statute laws against such offenses enacted for the public good, which should be enforced by the public legal machinery,

but in this regard the medical profession is an exception to all rules; its members must bear a special tax of two dollars per capita for the purpose of enforcing State laws, which in all other cases are enforced at public expense. Members of the profession are taxed on their possessions as high as anybody. Why should they have to pay for the prosecution of violators of the law any more than other professions? Are lawyers taxed a special sum to prosecute offenders in their ranks?

There are wicked, vicious and careless men who are willing to make money for themselves by encouraging the use of narcotic drugs and furnishing such things to the unfortunate victims of an acquired appetite—such are criminals—but very few of them are recognized members of the medical profession. The Harrison law, in many respects, is one of the wisest, but why should it penalize every honest doctor and tax him three dollars a year for the privilege of relieving the suffering of his fellow creatures?

The Prohibitory law is a public blessing, but why should it impose such burdens upon physicians who use alcohol only in a proper way? Why should it give such opportunities for selfish immoral men to make money out of the victims of the drink habit? Can anything be more supremely absurd than to give a doctor the privilege of writing one hundred prescriptions in a month and making it criminal if he writes one more? Who can tell how many of his patients will need some form of alcoholic medicine next month? Think of the tyranny of a law which will not allow a druggist to use a little alcohol in a prescription required to effect solution, because the writer, though a regular physician, has not applied for that contemptible permit to write one hundred prescriptions for a pint of booze. Who wants such a permit except the man who is willing to use it in pandering to the degradation of his fellows? Honorable physicians have to avail themselves of this permit, but I dare say every one despises such a law.

Why is the profession so tame and submissive? The unfair and ridiculous laws to which we are subjected would provoke a revolution if applied to any other class or profession."

F. E. COREY, M.D.

BOOK REVIEW

The Evolution of Disease. By Prof. J. Danysz, Chef de Service, Institut Pasteur, Paris. Translated by Francis M. Rackemann, M.D., Philadelphia and New York: Lea & Febiger. 1921.

On the basis of the reactions of the arsenobenzenes with blood serum, an elaborate theory of the "evolution" of disease is built. A critical consideration of the book will be aided by the knowledge that the basic experiments have been repeated by other observers with results, which, to put it mildly, modify any interpretation of the original facts in the case.

Nevertheless, as the author feels that there is a "complete identity of the reactions between serum and arsenobenzene on the one hand, and between serum and the biologic antigens on the other," he proceeds to develop analogies in every field of immunity.

The reader will appreciate his ingenuity, but is apt to feel that "in order to explain these things there has been created a complicated and barbarous terminology which has, incidentally, the great inconvenience of giving grand illusions with a precision which does not exist."

J. O.

California Association of Medical Social Workers

(Reported by Miss Edna J. Shirpsey, secretary)

The Association held a meeting in the rooms of the San Francisco County Medical Society October 21, and another meeting on November 18. The former meeting was addressed by Mrs. John Collier on "Health Habits of Children," and the latter meeting by Dr. William R. P. Emerson on "Nutrition." Miss Margarite Wales, chief social worker of the Stanford University Medical School and Hospital, discussed the aims and purposes of the organization of medical social workers.

The speaker emphasized the importance of developing the medical aspects of social work. The great advantage of co-ordinating the work of medical social workers and the early organization of these workers with the medical profession was emphasized. Medical progress in the prevention and cure of disease must go forward as team work under the leadership of the medical profession, if it is to fulfill its function of securing the greatest good to the greatest number from the services of physicians and to protect the members of the medical profession against wasted effort and misuse of their services.

"It is especially important for medical social workers to get together, not only to work out the problems that belong so definitely to their particular province, but some opportunity must be offered for them to hear the opinions of their co-workers in the medical profession."

"For some years social work in general has had a distinct place in the college curriculum." Medical social work is much more recent, and such a course is, at present, offered in only one medical school in this country.

At the business meeting of the association, Dr. Ray Lyman Wilbur of Stanford University Hospital and Dr. W. E. Musgrave were voted honorary members of the California Association of Medical Social Workers.

Dr. Edna L. Barney, Edna F. McInerney, Marion Maxwell, Ottilie Haas, Dr. Jessica Peixotto, Rose Steinhart, Lucy Ward Stebbins, Olive McGinnis, Regina P. Horton, Sophie Mersing, Katherine Wynne, Margaret Surmountd were elected to membership.

DEATHS

Woolley, Frederick Marion. Died in St. Helena, Calif., November 15, 1921. Was a graduate of the College of Osteopathic Phy. and Surg., Los Angeles, Calif., 1917. Licensed in California 1920.

Smith, George Sidney. Died in Half Moon Bay, Calif., November 21, 1921. Was a graduate of University of California 1879. Licensed in California 1880.

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Your Reservations
Early for
the State Meeting



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